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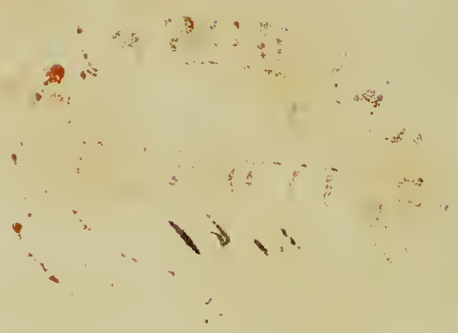

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OBSERVATIONS

ON THE

CONGENITAL GOITRE IN ANIMALS,

WHICH OCCURS

IN NIPAL.

By A. CAMPBELL, M. D.

Presented December 7, 1833.

Although goitre has been known as a disease of the human subject, to the natives of India, under various appellations*, for ages gone past; and has for many years been under the observation of Europeans in the districts where it prevails, to this day we know so little of the structure of this loathsome growth, either as it occurs in a congenital form among the lower animals, or as a disease of maturer years in man, that it becomes the duty of all who have opportunities of observing it in either situation, to communicate the results (however imperfect they may be) to those who cannot obtain the like facilities. I beg there-

* Ghênga, Ghêga, Kunth Mala (necklace) are the usual names under which it is described in Hindee works; and Abul Fuzul, in the Ayin Akburi, describes it with his usual correctness as it occurs in Behar and Tirhoot; he says, "Those who drink the waters of the Gunduk river have this disease."

fore to bring to the notice of the Society, the structure of some recent specimens I have procured of the disease, as it occurs in a congenital form among domestic animals in Nipal*.

The only classification of these tumors with reference to their structure, that I am acquainted with, is that given by Mr. Bramley in his "Account of Goitre in Nipal." He divides the tumors as they are found in man into three chief varieties, taken from external examination; and he says of those he examined, which were removed from animals, that "all were cellular; and that on making a section through them a transparent viscid fluid exuded."

I have since my arrival in Nipal examined 22 tumors, (congenital ones, in lambs and kids,) and the structure of 17 out of that number was as described by Mr. B., each exuding on being punctured or cut into, a glairy, whitish, semi-gelatinous fluid, sometimes but rarely however, (in 3 of the 17,) tinged with blood; the tumors diminishing in bulk as the matter escaped. The cells in this variety are very small, and sometimes not distinctly manifest; but the discharge of fluid and

* I send for inspection the entire goitres and larynges of two kids, and one lobe of a goitre cut open to shew the structure. The three kids were born a few days ago of the same mother, and I have since procured two young ones, both with goitres of the same structure.

the absence of any large cavity or sac in them is sufficient to establish their existence, although not visible to the naked eye. The cells are best seen after washing and squeezing the tumor, when they are often so numerous and close to one another as to leave little besides their walls, forming the parynchyme of the swelling. In all those I have seen of the cellular variety, the cells have been exceedingly small, each not larger than a grain of mustard seed, but so numerous, that were it possible to get rid of the whole of the contained fluid, we should have nothing left, but, in the literal sense, a pure cellular tissue.

The goitres of this description, as far as I have seen, are flaccid to the feel; and the cellular membrane surrounding them, almost in every instance contains a fluid similar to that of the tumors in colour, but more gelatinous.

The five remaining specimens present a totally distinct structure from that of the tumors classed under the cellular variety, and may be classed under the denomination of the "Sarcomatous Goitre."

Externally felt, they convey the idea communicated by handling a horse's testicle when in the gelder's clamps, firm and rather elastic; they have an even smooth surface, are easily moveable under the skin, and when cut into, discharge copiously a quantity of blood. A section of them shews

on close examination somewhat of the glandular structure; but the general impression is, that we are looking at a common sarcomatous tumor. Like the cellular ones, their shape and size are various; but in the five animals born with them, examined by me, the tumors were double the size of any I had previously seen of the cellular kind, and I have now a specimen of this variety which weighs 14 ounces taken from a kid.

I have observed, that the cellular tumor is most commonly of a pyriform shape, the apex of each gland being attached to the horn of the thyroid cartilage of its own side, and that the two glands are distinct and separate throughout.

The sarcomatous ones on the contrary have been of a laterally compressed oval or roundish shape, each gland being attached to the thyroid cartilage, and the two joined by a band of fleshy substance a quarter of an inch broad, at their lower (or with reference to a quadruped) their posterior ends; the connecting band lying in front of, and across the trachea.

It would be wrong to fix this as a characteristic of the sarcomatous variety, from so small a number of examples; but, it is nevertheless worth recording, the more so, as in 17 cases of the cellular variety, this connecting band did not exist, and in five of the other it was prominently marked.

The inquiries hitherto made into the causes of bronchocele, as well as into its hereditary or non-hereditary nature, have been so unsatisfactory, that the subject has assumed a most discouraging attitude. The collection of facts connected with the subject is the only mode of assisting those who may engage in the inquiry, and with this hope there are a few of my own observations connected with the congenital form of the disease perhaps worth tendering.

1st. Goats and sheep brought from the north-western provinces of India, where goitre is not known, to Nipal and Tirhoot, where it is very common, produce goitred young, (though they were pregnant previous to arriving in the infected districts.)

2nd. A goat or sheep unaffected, and in perfect health, produces in Nipal goitred offspring.

3rd. A female parent having the disease scarcely ever produces other than diseased young ones.

4th. Of twenty-three lambs and kids included born with bronchocele, all died within a few minutes after birth; with one exception, that one a lamb, one gland only being enlarged.

5th. The tumors in the offspring of goitred parents, are invariably larger than in that of healthy ones.

6th. The death of the affected young ones, does not depend on the size of the goitre.

The above has reference to my small experience only, and I regret extremely that in a matter of such physiological and pathological importance, as the fatal nature of congenital goitre undoubtedly is, I should not be able to offer any satisfactory explanation of causes producing such certain death, as attends this congenital deformity. The young in all the cases alluded to were born alive, and in all where I took notes of the impregnation of the mothers, had undergone the full period of gestation: but with the exception of the individual who lived, and one other, all were imperfect in one respect, viz. the coat of hair or wool was completely wanting, save a line running along the spine, and a circular portion on the fore knees (carpi). To meet any objection that may be made to this curious fact, on the ground of probable mistakes made in calculating or ascertaining the exact period of impregnation, I beg to state, that in two instances, a goat produced twins, one of the young ones in each instance was completely clothed in hair, had not a goitre, and he lived: the other, born with him, was destitute of hair, was alive when produced; but expired immediately afterwards.

It is remarkable that the only survivor of 23 individuals born with the disease, was the offspring of a sheep not affected with goitre; its tumor was

of one gland only, and about the size of an apricot; it remained stationary in size for about 10 days, from which time till it was six weeks' old I did not examine the growth. On getting hold of the creature, I was surprised and glad to find that the disease had vanished.

Fortunately, congenital goitre is not known in Nipal to occur among the human race, and it is a blessed dispensation, and long may the Guide of all things conduct us free of this affliction. Dissection does not to my obscure ken throw much light on the causes producing death so invariably after birth; but be they what they may, their operation does not come into play until the victim is brought into a new state of existence: and as respiration is the grand change consequent on the new state, a faulty condition of the respiratory passages is the probable cause of death.

Utterly unacquainted as I am with the appearance of the respiratory passages, in animals newly born, I dare not give a fixed opinion on the manner in which the larynx is, probably, affected in its functions by the presence of the congenital goitres; but this much is certain, that the muscles, arising from the sternum, to be inserted into the os hyoidus and thyroid cartilage, are by the pressure of the tumors, nearly obliterated.

These muscles are nothing more than thread-like fibres, and it is not strange that they should be

thus prevented from attaining their natural size; for while in utero the fœtus does not use them, and the goitre continues to enlarge, without its increase being in any wise counteracted, as in maturer years, by the action of the said muscles. Besides this, the pressure of the tumors on the larynx may be well supposed to prevent the full and natural development of that "door of life," and I have observed in all the cases, that the thyroid cartilage is much less hard and firm than all those of the trachea.

The vulgar say, "the creatures die because they cannot suck:" possibly they could not; but they are very rarely allowed to try. The common course being this, the creature is born, is feeble, and unable to *raise its head*, gasps half a dozen times for breath, and then yielding to the struggle, mingles with its fathers.

Nipal, Nov. 26, 1833.

SOME ACCOUNT

OF

A PECULIAR FORM OF FEVER

WHICH EXISTS

IN BENGAL.

By H. H. GOODEVE, M. D.

Presented September 7, 1833.

The capriciousness of intermittent fever in the period of its attacks, and in the intervals which it suffers to elapse between its paroxysms, is well known; but there is a peculiar form of this fever in Bengal, which I have nowhere seen described by European authors, who treat of the diseases of India, though the natives are well acquainted with it, and it is mentioned, I believe, in several of their medical works.

It is called نزلہ (Nuzlah, *Rheum*) by Arabic writers; the Sanscrit and Bengalee name is বাতজ্বর (Bat Jer, *Flatulent Fever*); the Hindee سنج کي تپ (Sanj kee Tup).

The disease exists in almost every part of lower Bengal, but I believe that it is unknown in the

western provinces, unless perhaps in some very marshy districts. Its principal seat however is in the neighbourhood of Midnapore, and in the flat tract of country stretching from that station towards the sea in the direction of Hidgelee, Cuttack, and Balasore. It attacks principally the lower classes, and those who are much exposed to hardship; without distinction of sex or age.

This fever begins with the usual symptoms of langour, head-ache, &c. and is succeeded by a fit of shivering more or less severe, though the symptom is not always very strongly marked, and the hot fit sometimes comes on without its usual predecessor. This latter stage is often very severe; the heat of skin is great, and the pulse very quick and full, with severe head-ache, often accompanied by low delirium; and at times a semi-comatose condition, in which the patient passes his urine and fæces involuntarily. In other cases, it is much milder. This hot stage continues with more or less severity for about eight and forty hours, when it gradually abates, and in the course of a few hours more the patient is as well as he was before the attack, and able to go about his usual occupation.

A critical sweat sometimes occurs, but it does not always terminate the paroxysm.

A peculiar local affection however accompanies this disease, which is, I believe, invariably present

with it, forming one of its distinctive characters. This is an œdematous swelling, usually of the feet and ankles, with pain, and a burning sensation, and sometimes considerable inflammation, which commences with the first appearance of the fever, and subsides at the termination of the paroxysm, entirely, in the early periods of the disease; but after the malady has become thoroughly established in the patient's constitution, the *swelling* remains permanently fixed, the pain and inflammation only returning with each attack. The legs are not however always the seat of this affection; in some instances, it prefers the hands and arms, and in others, the thighs, and not unfrequently the scrotum; in the latter case, I have often seen a sarcomatous enlargement of the testicle present at the same time, but whether this latter was produced by the former disease, or whether it existed previously, and by its irritation determined the affection towards this part, I cannot say.

In the early attacks of the disorder œdema is not always present: sometimes there is merely a hard inflammatory swelling in the inside of the thigh, or on the arms, and in a few cases, only extreme pain in their situation without inflammation.

The first paroxysm being over, the patient remains free from another attack for *fourteen days;* at the expiration of which, the disease returns in the same form, and continues, if unopposed by

medical treatment, to repeat its visits twice in every month for many years; not unfrequently during the remainder of the patient's life, and that without materially injuring the vital powers; for I have often seen men who have been labouring under this disease for ten and fifteen years, who in the intervals of the fever were in perfect health, and working as hard as their neighbours. It is sometimes however, though very rarely, fatal; and when it does terminate in death, it is commonly by effusion on the brain.

The accessions of this fever are evidently influenced by the changes of the moon; and however sceptical many people may be in that point, I am persuaded by close observation of this much ridiculed subject, that the human body is nearly as much controuled by the lunar changes as the tides and the weather; and in confirmation of this opinion, we find that the periods of new and full moon, are those at which the paroxysms of this malady recur, and that with the utmost regularity. How this powerful cause operates on the animal economy I do not pretend to explain. I believe we must rest satisfied for the present of the fact that it does so, and trust to time and the progress of science to clear up the mystery of its modus operandi.

The native mode of treating the disease is very rational, and it is singular that they appear to have been aware for ages of the value of a remedy

which we have but lately introduced into European practice, although their notions about it are rather crude; this is, blood-letting at the very commencement of the attack. They are of course ignorant of the principles upon which it acts; and although they direct the operation to be performed the moment the fever shows a disposition to come on, they often delay until it is too late to arrest the paroxysm; for, as their only object is to let out the *hot blood*, which they believe to be the cause of the fever, they are apt to think it will answer quite as well when the hot stage is already established. It is even then however sometimes a desirable operation, to diminish the arterial action, which I have before said is not unfrequently very violent in this disease. In almost all cases they administer a mild purge, and sometimes an emetic is given. After the bowels are cleared out, they trust, during the remainder of the attacks, to starvation, and tisans of tamarind water, which keep up a gentle action in the intestines, and generally produce at least one stool daily. If there be much pain and inflammation in the local affections, leeches and cold lotions are applied.

In the intervals of the paroxysms, febrifuge medicines are given, and amongst others, their favorite *arsenic* is the most celebrated. Another medicine, which they hold in high repute for the cure of this malady, is a mixture of the powder of Bhair and black pepper, in equal parts, and given in doses of about thirty grains twice a day.

This plan of cure is so excellent, that in treating the disease, we may safely take it for our guide, modifying it slightly, however, to make way for the improvements of modern medicine. In the first place, venesection in the early stage is most important. I need not dilate on the value of this remedy in the cure of intermittents, it is now too well known to require remark. A mild purge also should be given in the commencement, and tisans should be employed, and such local applications as the case may require; the patient being kept cool and quiet, with little or no food.

If much cerebral affection exists after the free bleeding, a blister should be applied to the nape of the neck. In the intervals of the fever, the usual preparations of bark, quinine, cheyretta, goluncha, &c. should be taken; and I would beg to observe, that the extract of goluncha recommended by Mr. Piddington, is a very excellent remedy in this, as well as many other forms of intermittent fever*. Arsenic is sometimes very beneficial in obstinate cases, but after the disease has for any considerable time been firmly established in the patient's constitution, it defies the power of medicine, and pursues its course uninterrupted by any attempts of the physician to check its progress.

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* I consider this drug; if not quite equal to quinine as a febrifuge, at least as good as the common Cinchona bark in any of its forms, and much better than cheyretta.

If left to nature, this disease sometimes wears itself out after many years, but it more frequently remains the troublesome companion of the patient's whole life.

In the foregoing paper I have mentioned the good effects of the extract of goluncha as a remedy for fever, and at the same time I would wish to call the notice of the Society to this medicine as an admirable substitute for the extracts of gentian and cheyretta in combination with ipecacuanha in dysentery. I have lately given it largely in the Jail Hospital at Midnapore, in this disease, and with quite as much benefit as could have been derived from the other bitter extracts. I will not take up the time of the Society by details of these cases. It will be enough to state that they were similar to the usual forms of the disease, and that after a purge or two of blue pill and colocynth, or castor-oil, I gave pills of equal parts of blue pill, ipecacuanha, and extract goluncha, four grains each, night and morning, with doses of castor-oil as occasion required, and the result was most satisfactory in every instance.

Midnapore, Sept. 1, 1833.

A CASE OF ABSCESS

IN

THE COATS OF THE BLADDER.

By J. DAVIDSON, Esq.

Presented March 9, 1833.

Hussain Ali, a stout middle-aged man, addicted to the use of opium, but otherwise of regular habits, applied for relief at the Pilgrim Hospital on the 20th November, on account of retention of urine, which he stated to have come on gradually, but that no urine had been expelled for two days. He was in great pain from the distended bladder, which was felt above the pubes, very large and hard, and there was an œdematous swelling of the penis and scrotum. Finding some difficulty in introducing the common catheter, I used a straight pewter one, and easily succeeded in drawing off a very large quantity of very fœtid urine. Ordered a purgative, and hot fomentations to the perineum and pubis, and a composing draught at bed-time. In the morning, he was much relieved, and for several days continued to pass his urine pretty copiously, but with gradually encreasing pain and difficulty; this seemed attributable to a swelling just above the pubes, which notwith-

standing the application repeatedly of leeches and cold applications, continued to encrease in size for ten days, at which time it was as large as a goose's egg, hard and puffy; the swelling had extended to the penis, and the urethra appeared obstructed by it, so that he could not pass his urine for several hours. He was in great pain and very irritable with fever, and complained that unless I could relieve him, his sufferings were so great that he could not live through the night. I found the swelling still hard, but thinking there was an obscure sense of fluctuation at the most depending part, I made an incision of a couple of inches in length, and one and a half in depth, which gave immediate relief, and was followed by the discharge of about eight ounces of fœtid pus and sloughs. In about an hour he was able to expel his urine by the urethra, but during the ensuing night, discovered that it was also discharged by the wound above the pubis. This discharge of sloughs and urine, mixed with pus, continued for upwards of a month, during the early part of which time, he suffered from fever and bowel complaint, but these were soon cured by the usual remedies; after which, by the use of vegetable tonics and soda, and opium at nights, with generous diet and brandy, the abscess put on a healthy appearance, the sloughs gradually ceased to be discharged; and on the 10th instant he was dismissed, the abscess being quite healed up, and his health good in every respect, which it has continued to be up to this time.

I have been induced to forward this case to the Medical Board, as it is an uncommon and interesting one. There can be no doubt of its having been an abscess either in the coats of the bladder, or in a sacculus of that organ. I showed the case to Mr. Venour, who happened to be at Gya at the time, and he entirely coincided with me, as to the nature of the case, and the proper treatment to be pursued.

Gya, January 9, 1833.

ON THE PATHOLOGY

OF

SOME OF THE DISEASES

OF THE

ABDOMINAL VISCERA.

By C. MOREHEAD, M. D.

Presented September 7, 1833.

Before proceeding to the detail of individual cases, there is one consideration connected with the pathology of the intestinal canal, concerning which I shall make a few remarks.

I do not think that we have as yet a proper estimate of the frequency and importance of the implication of the submucous cellular tissue in the diseases of the mucous lining of the large bowels. I am aware that Andral has considered that tissue, in the stomach, as playing a very important part in the pathological changes of that organ. He has rather however looked upon it as being the seat of distinct and independent lesions, and has located in it many morbid changes which formerly were differently accounted for. It is not thus that I feel inclined to view the implication of the subcellular tissue, in diseases of the mucous lining of

the large intestines: I would rather consider its changes in their light of influencing the muscular and mucous tunics: if the sub-cellular tissue be thickened, the muscular coat cannot efficiently act in propelling the contents of the bowel. The probable influence of such thickening, on the mucous lining, will be alluded to in the sequel (case No. VII.).

There is no doubt that the coats internal to the muscular are frequently thickened, but still the question rests, when is the increment in the cellular tissue—when in the mucous coat itself? Dr. Abercrombie thinks that there is little prospect of ever resolving the question, and little utility to be expected from its resolution. Though this opinion is no doubt to a certain extent correct, yet this eminent pathologist appears to me too hastily to resign all attempt at sub-division. There are considerations which more clearly than any other implicate the subjacent cellular tissue, and which I think have not met with the attention they deserve. The anatomical conditions of the mucous lining of the large intestines are two—the one when the bowel is moderately dilated: the other when it is contracted; the first a tolerably uniform surface*, the other a rugous, irregular, puckered one. Both these conditions

* I cannot illustrate this condition better than by referring to a case of Ischuria Renalis, lately sent by me to the Society, in which such was marked by the state of part of the colon.

are equally physiological, yet the same morbid lesion would differ much in appearance according as it existed in a mucous lining in the one condition or the other: one great use of the intercellular tissue is to admit of this double anatomical condition. Should that tissue become diseased, the changes which result will more or less interfere with such use. Some of the cases in the sequel will shew that changes in the subjacent cellular tissue frequently result from inflammation of the mucous coat. Suppose a mucous lining with a rugous surface should become the seat of inflammation, the action extending to the sub-cellular tissue, may cause thickening there, and fix the mucous lining in its rugous condition. It is plain that the morbid results of such inflammation would differ in appearance from the results of a similar action in the mucous lining when not in a rugous state. The lesions in both instances have been the same, the difference lies in the anatomical condition previous to, and during the progress of, the disease. Such a physiological rugous condition is very likely to be the state of the mucous lining of the lower part of the large intestines in dysentery. One of the first effects of irritation of the mucous lining is to induce strong contraction of the muscular coat. This is the explanation of the tenesmus.

These remarks when thus unsupportedly stated may appear too theoretical, but in cases No. IV.

and VI. there are appearances which cannot well be explained by any other view.

Strictures of the sigmoid flexure and rectum, often with irregular, ulcerated mucous surfaces, are, I think, also in part best explained on a similar principle.

CASE, No. I.—*Gray softening of the mucous lining of the stomach and colon.*

John Knapp, Private, 4th Light Dragoons, Æt. 22. Had dysentery twice in 1830. Admitted into Hospital 17th April, 1832. Attacked with purging on the 15th, evacuations scanty, light coloured, reported to contain blood; griping; tenesmus. Pulse and skin good; tongue foul, bad taste of mouth.—18th, purged, evacuation orange-coloured, slimy, copious; less griping; tenesmus continues. *Vesper*, very frequent evacuations, green, slimy, and containing blood; pain of the iliac regions on pressure; distressing tenesmus; pulse quick; tongue foul.—19th, pain relieved; purging continues, with mucus and blood; tenesmus; vomiting from pills, which contain ipecacuanha. *Vesper*, occasional retching and vomiting.—20th, greenish watery evacuations, with clots of mucus; less tenesmus; retching at intervals; pulse 120, small; great thirst; mouth becoming sore. *Vesper*, dark watery evacuations; no pain; much sinking; clammy skin; very frequent pulse.—21st, occasional retching; no pain; thirst undiminished; tongue furred, red round the edges.—22nd, incessant retching. In the night two evacuations of natural fæces, with white mucus; no tenesmus; extreme thirst. *Vesper*, is sinking; died at midnight. *Treatment*, V. S. blisters to the epigastrium; mercurials with opiates; mouth sore; no salivation.

Inspection. On opening the abdomen, the intestines appeared natural, no evidence of peritoneal inflammation; no disten-

sion of the bowels. The large intestines with the termination of the ileum were opened. The mucous lining of the ileum somewhat vascular, perhaps thinner, peeling easily off with the nail. There was one ulcer in the cœcum about the size of a silver penny, not deep, unsurrounded by thickening or vascularity, secreting good pus. The mucous lining of the great intestines throughout perhaps thicker than natural, of an ash light-gray colour, here and there dotted red, peeling off easily in shreds with the nail; contents of the large intestines green and feculent. The stomach opened presented here and there much the same ash-gray, dotted red appearance, mucous tunic thickened and softened, with the marks of one or two small ulcers cicatrizing; small intestines not opened. Liver healthy. Gall-bladder full of good bile. Thoracic viscera sound.

Remarks. It is probable that the tissues which had been diseased in the dysentery of 1830 had completely resumed their natural state. The inflammation of the mucous lining of the stomach rather than that of the colon was the cause of the fatal result. The principal lesion was gray softening, with some thickening of the mucous coat of the stomach and colon. This appearance is generally the result of chronic action, it cannot be said to have been so in this instance.

It has been doubted by some pathologists whether the gray softening be a result of inflammation. In this case, where the symptoms clearly proved it, and where there were other less equivocal indications, viz. the ulcer, and the here and there a dotted red appearance, there cannot be any doubt. This view is also supported by cases V. and VIII.

CASE II.—*Abscesses in the Liver: diseased large intestines.*

John Ryan, Æt. 25, Private, 4th Light Dragoons, 5 years in India. Never had fever, hepatitis, or dysentery. Admitted into Hospital May 18th, 1832. Stated that for two or three days back he has had chills and heat, with catarrhal symptoms, no difficulty of breathing, pulse somewhat frequent; *vesp.* pain of right shoulder.—20th, *vesp.* first complained that pain of shoulder extended to right hypochondre, that he could not lie on left side nor move without pain.—21st, pain increased, principally the middle of upper false ribs. *Vesp.* the pained spot somewhat anterior to the centre of the convexity of middle false rib; skin hot; pulse 96.—22nd, easier. *Vesp.* inclination to go to stool, nothing passed.—23rd, easy, can lie on either side.—24th, return of pain. Refers the pain to one spot, and *says, it seems to shoot through the back.*—25th, more pain in the night.—26th, pain returned in the night, but gone just now.—27th, countenance anxious.—28th, not quite free of pain.—29th, a pretty good night; pain not quite gone.—31st, side easy, dry skin. June 2nd, a good deal of pain to-day; describes it as a sensation as if something adhered to the side.—3rd, had a dracunculus extracted from the right foot.—8th, the pain of side continues at the old place, that at the edge of the ribs gone; describes the *pain as more throbbing;* irritability of pulse.—9th, *vesp.* pain at the edge of false ribs severely felt on motion; sharpness of pulse.—10th, *vesp.* pain unrelieved, it extends from a little below the *last false rib to the top of the os ileum, and anteriorly towards the umbilicus,* but is relieved by grasping the side and pressing it.—12th, easy with a bandage.—13th, pain below the false ribs continues.—14th, easier; skin occasionally dry; countenance pallid; tongue clear. Has appetite.—23rd, occasional retching; side easy. *Vesp.* has been coughing a good deal. No pain of chest on full inspiration.—25th, cough gone; countenance pallid. The edge of the liver distinctly felt, stretching across the epigastrium. No pain there.—25th,

return of cough, sputa reddish brown; chest expands well. Frequent pulse; hot skin.—28th, sweated much in the night; cough troublesome; full inspiration causes some pain of right hypochondre.—30th, purged, evacuations slimy and light-coloured. July 1st, cough, sputa redder.—2nd, pain at the anterior part of right false ribs, and stretching back.—5th, sputa brick red. *Vesp.* much purged, evacuations light-coloured, thin, slimy, with drops of reddish mucus; straining.—6th, cough and purging; states that *when he lies on the left side he does not expectorate with the cough, but when on the back, the cough is more troublesome; expectoration copious.*—10th, purging and cough.—16th, purging, cough, sweating at night; failure of appetite.—22nd, tenderness over right side of epigastrium; the edge of the liver can be felt low, and is the seat of pain. Emaciation.—26th, more purging, evacuation light yeasty. Sinking. Died early on the 27th July. *Treatment*, V. S. leeches, blisters, tartar emetic ointment, mercurials, nitric acid, ipecacuanha and gentian. Ptyalism was never freely induced.

Inspection seven hours after death:

The liver much enlarged, on the right side, extended as low as the last false rib, and in its passage across the abdomen projected considerably beyond the cartilages. It was bound closely to the right side; a great portion of the right lobe adhered firmly to the diaphragm. The concavity of the liver adhered pretty firmly to the colon: part of the thin edge of the right lobe was covered by an adhesion of the omentum. In the right lobe were three distinct abscesses, their cysts lined by a membrane with irregular surface: that abscess which approached nearest to the surface occupied the right side of the lower portion of the right lobe, between it and the colon there was only a thin layer of the substance of the liver, which with the colon formed part of the wall; the two other abscesses approached near to the diaphragm. The lowest lobe of the right lung adhered firmly to the diaphragm, so much so, that in one part, in

endeavouring to separate the adhesions, part of the upper wall of one of the abscesses came away. Here the wall might be said to be formed of the diaphragm, in such close adhesion with the upper surface of the liver, and lower surface of the lung, that there was no possibility of distinguishing the difference of structure. No communication with the lung discovered. Pus thick, consistent. The left lobe contained no abscess, it was much indurated, but not changed in colour.

The omentum vascular, extended into the cavity of the pelvis, and adhered slightly to some of the viscera. The cœcum thickened adhered to the iliac fossa. The transverse colon had not lost its cells, it was somewhat changed in direction. The mucous lining of the ileum healthy, that of the cœcum with its sub-cellular tissue much thickened, in parts cartilaginous, ulcers of considerable size, unattended with redness, preferring the thicker and more indurated parts; the bottom of some of them formed only by the peritoneum; throughout the colon there was thickening, probably in the intercellular tissue, not to so great an amount as in the cœcum; no ulceration. The mucous coat pulpy, had an irregular, papillous* surface: it looked more like a coat of thick transparent mucus, in parts removed, than an organized membrane. The mucous tunic with its thickened cellular tissue could be easily raised from the muscular coat and peeled off in large portions. The muscular fibres healthy. Stomach healthy. The lower lobe of right lung somewhat gorged, and when cut into and pressed, gave out frothy yellow, thin, purulent-looking fluid, the bronchial lining slightly reddened. In other respects, with the exception of a calcareous concretion near the bronchus of right lung, they were healthy. With the exception of adhesions to the diaphragm, there were hardly any others. Heart healthy.

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* I have ventured to use the word "Papillous" in the sense that *Louis* and other French pathologists have used the word "Mamelonée." I mean it to have reference only to one of the meanings of the root "Papilla," viz. Nipple.

Remarks. It is not often that we meet with cases in which each successive morbid change has been so clearly pointed out by the symptoms. There was complaint of pain of right shoulder before there was any symptom referrible to the liver. I am not aware that this precedence of the pain of the shoulder is a common occurrence. Certainly the coincidence of liver disease and pain of right shoulder is not so common as has been often supposed. From the pain, and the inability to lie on the left side, it is probable that the disease commenced in the peritoneal lining of the convexity of the liver. On the 23rd, amendment; 24th, the pain, shooting to the back, gave reason to believe that the inflammation had extended to the substance of the liver, and on the 8th June, there was reason to believe, that it was passing into suppuration; June 9th, 10th, the adhesions of the omentum to the thin edge of the liver, and those of the liver to the colon, probably formed; and this is a reason for believing that the abscess towards the colon was the one which formed first. The pectoral symptoms on the 23rd probably pointed out that the abscesses towards the diaphragm were in progress. On the 25th these abscesses had increased, and pushed the edge of the liver beyond the cartilages of the ribs. The report of July 2nd, clearly implicates the diaphragm. On the 30th June, the dysenteric symptoms first appeared.

The implication of the gastro-intestinal mucous lining, is common at the termination of many

chronic diseases. I shall not stop to inquire whether the ulcerations of the colon, in cases of abscess of the liver, are merely an illustration of that general fact, or whether there be not some more individual relation. There was no communication discovered between the lungs and the abscess. There may have been a minute one, or the sputa may have proceeded from the irritated bronchial lining. The report of July 6th seems however to countenance the first view. The lesion of the mucous lining of the colon was probably an advanced stage of that observed in No. I. The membrane was more pulpy, and in parts a portion of it had been removed, causing the uneven *papillous* surface. This is not a very uncommon appearance in the stomach. I have seen it in the stomach of a man, who died in the Hospital of the 4th Light Dragoons, in a state of collapse and coma from intoxication. It is an appearance which has been differently explained; by some, as softening of the tunic, the lower level of parts being caused by the removal in such sites of part of the mucous surface: by others, as a fuller development of the mucous follicles, which elevates the tunic into small *papillæ*: the parts of lower level being the tunic not thus elevated. Both these views may be correct, and will I think find support in No. IV. In this case, the implication of the sub-cellular tissue bore relation to the amount of disease of the mucous tunic.

Case III. *Chronic dysentery, thickened state of the colon, papillous surface of the mucous coat, with probable hypertrophy.*

William Nash, Æt. 27, Private, 4th Light Dragoons. In 1830, had dysentery, and since that time had never been in perfect health. Admitted into Hospital 6th April, 1832, with febrile symptoms: was actively treated.—26th. Palpitation at the epigastrium, which he has occasionally observed since he was in Hospital with the first attack of dysentery. Abdomen full, slight uneasiness in the course of the colon on pressure.—27th, says that on pulling his belt tight he has generally pain in the course of the transverse colon.

May 22nd.—Discharged convalescent.

May 28th.—Re-admitted. Was on the previous day discharged from the convalescent ward. In the night time, purging returned with griping, and has continued very frequent since. —30th, strong pulsation at the epigastrium and below the umbilicus. July 30th, pain above the umbilicus, occasional hardness there; strong pulsation.—31st, there is a feeling of hardness in the course of the transverse colon, commencing on the right side of the umbilicus, and extending across the belly and upwards, and towards the left side of the diaphragm; feeling of soreness there. Died September 4th.

Throughout this long illness there were frequent amendments and relapses. Every variety of treatment was tried. The appearance of the evacuations throughout the disease varied. They are described as follows at different times in the reports: "Sometimes yellow, sometimes slimy; greenish and thin, with some lumps; dark green, watery; thin watery, bilious with white flocculi; thin yellow with some drops of blood; brown, watery, with some specks of blood; pretty consistent, with curdled appearance, tinged with bile; consist of bright

yellow granules and flocculi floating in water: were also frequently feculent and natural.

Inspection, six hours after death:

Body emaciated; the omentum vascular, extended over all the bowels, but had not formed any adhesions, and was not thickened. No unnatural adhesions of the cœcum; the colon throughout its whole course very much contracted, but not connected by unnatural adhesions to adjacent organs; the colon, after reaching the concavity of the liver, doubled down in a direction towards the umbilicus, not however extending so low, thence it doubled upwards, and followed the great arch of the stomach; the descending colon followed its natural course; there were some black patches on the peritoneal coat of the rectum. Parts of the meso-colon and meso-rectum fleshy and thickened, with enlarged glands. The small intestines much contracted; where most dependent, there more discoloured; were lying in the pelvic region, so that for the space of two or three inches diameter every way the lumbar vertebræ had interposed between them, and the anterior abdominal parietes, only the mesentery and the blood vessels, with their investing tissues: this space was in part opposed to the umbilicus, and the situation where the strong pulsation had been so long felt. This space was bounded superiorly by the transverse colon laid on the commencement of the jejunum, which latter intestine, after coursing along the right side of the descending colon, joined the rest of the small intestines, all of which were found on a plane below the last lumbar vertebra. The transverse colon had not lost its cells; they were however diminished. The mucous and intercellular tissues, throughout the whole course of the large bowels, much thickened, could easily be peeled from the muscular, the fibres of which latter were pale and healthy.

The whole surface of the mucous tunic had an irregular aspect, produced by the elevation of little, variously-sized super-

ficial eminences, closely grouped. It resembled nearly the posterior part of the tongue, where the papillæ are broad and flattish, or it might be likened to a surface of closely grouped superficial warts; the effect was to make the mucous tunic at first sight look ulcerated, but on nearer inspection, the absence of ulceration and the continuity of the mucous surface were apparent. This surface resisted washing or rubbing with the flat part of the finger, but the papillæ peeled off with the nail in the form of thick gelatinous mucus, containing some opaque granules: there was little change of colour, it was greyish throughout the greater part of the membrane. Here and there, more especially at the sigmoid flexure internally, were black patches, half an inch or more in diameter; in parts of some of these there was a breach of continuity: these patches were gangrened portions, very tender, peeling off in the form of a thin pellicle, leaving underneath a reddish ulcerated-looking surface; in some the gangrened pellicle had been altogether thrown off, and left a superficial ulcer with reddish bottom and ragged edge; but this was not in many instances the case. In the rectum there was more of this gangrenous appearance: the patches however were less defined. The greater part of the under tunic of the lower portion of the rectum was occupied by a thin tender pellicle, easily separating, in some portions black, in others less remarkably so. The coats of the small intestines thinned; the bowel contracted. In parts however of the lower portion of the ileum there were partial distensions, sometimes only of one-half of the diameter of the gut; there was redness of part of the mucous lining of the ileum, but no proof that it was the result of inflammation; contents green tenacious. The stomach, distended with air, seemed sufficiently healthy; the liver had formed no unnatural adhesions, it was somewhat darker in its colour, and internally somewhat more mottled than natural. The gall-bladder contained dark bile.

The cortical part of both kidnies had partially undergone the yellow degeneration first described by Dr. Bright. Lungs

on both sides adhered firmly, but their structure was sufficiently healthy ; heart sound.

Remarks. It is probable, that the tunics never recovered their normal condition after the first attack in 1830 ; the disease at that time may have consisted of softening of the mucous coat, followed by thickening of the sub-cellular : the former may have been recovered from ; the latter, probably remained. My reasons for thinking so are, the pulsation at the umbilicus complained of from the time of the first attack, the explanation of that pulsation, the uncomfortable feeling on tightening the belt, the frequent relapses of diarrhœa and dysentery.

How well the report of July 31st is explained by the state and position of the transverse colon, as found on dissection. The actual condition of the colon was thickening of the sub-cellular tissue. Softening with hypertrophy of the mucous coat.

The plausible explanation of the appearances in this case is, that during the long illness, the succession of amendments and relapses, the mucous lining became the seat of different actions. It may have been reduced to the state in the colon of No. II., then the action of softening may have ceased, and the anormal nutrition which I have supposed to have pre-existed in the cellular tissue may have extended to the mucous lining, and increased its molecules ; this action of hyper-

trophy would have found the surface of the membrane irregular; its effect must have been to exaggerate that irregularity. The white granules intermixed with the secretion is another reason for supposing that there must have been some action in addition to the softening. These white opaque granules I shall subsequently notice: I have seen them in several instances in the small intestines, and all under different circumstances.

In the case of John Wilson, Private, 4th Light Dragoons, of intemperate habits; who died with obscure symptoms, probably dependant on lesions found in the head, the mucous lining of the stomach presented an appearance similar to that of the colon in the case just reported. It is thus described in my notes: "Internal coat throughout, but more especially towards the pyloric end of the stomach, papillous and considerably thickened; the papillæ very distinct. In some places the membrane firmer and more strongly adherent to the subjacent tissues, but towards the pylorus it was softened. At the cardiac end there was a considerable patch, where the mucous coat was thinner and softer than natural.—During the course of the disease, there had been irritability of stomach.

CASE IV. *Dysentery with puckered fungoid internal surface of part of the colon.*

John Garness, Æt. 24, Private, 4th Light Dragoons. About two years in India. January 17th, 1831, admitted into Hospital, with head-ache and pain of right shoulder.—19th, pain of right

side increased by full inspiration, and by lying on the back ; skin cool. This man was cupped, and the side rubbed in with mercurial ointment.—26th, easy ; slight cough.—29th, no pain ; mouth sore. Discharged February 11th.

Re-admitted with catarrh, November, 1831. In May, 1832, he had common continued fever for a few days. September 9th, 1832. admitted from the surgical ward, (where he had been long confined and much reduced from numerous *Guinea worms*,) with dysenteric symptoms of two days standing ; there was little pain of belly and not much pyrexia ; blood and mucus were observed in the evacuations, and latterly, membranous shreds ; cold clammy skin for some days before death. Died September 23rd. Bled, leeched, blistered, mercury in the form of calomel, blue pill, and friction ; no ptyalism.

Inspection, seven hours after death. Omentum vascular, in parts fleshy ; few adhesions here, none of the cœcum. The top of the ascending colon adhered firmly to the gall-bladder and under surface of the liver. The ascending colon and commencement of the transverse distended, the latter forming the common duplicature towards the umbilicus. At the middle of the transverse colon, the gut became contracted and thickened ; the descending colon was similarly contracted, its natural connections were vascular ; no new ones had formed. The sigmoid not so much contracted, it felt also firm and thickened ; the greater part of the S. flexure was lying in the pelvis, its peritoneum here and there vascular. Rectum thickened and firm.

In the cœcum and ascending colon the mucous membrane had that irregular papillous surface which I have described before—an appearance as if an unequal exudation of tenacious adherent mucous had taken place. Where this appearance existed the membrane could be distinctly raised from the subjacent tunics. In the intercellular tissue there was no thickening, its filaments were distinctly seen on the

stretch under the raised mucous membrane. The muscular coat was healthy; here the disease was solely in the mucous tunic. Approaching the contracted portions, the irregularity of surface increased; and round, small, defined, superficial ulcers like small-pox pits began to appear here and there, they seemed to be in the situation of what had been large papillæ; throughout the contracted portion, the sigmoid, and rectum, the irregularity of surface was so increased as to present a puckered fungoid aspect: here the bottom of the depressed interstices was evidently in most instances the cellular tissue. Sometimes the elevations coursed in distinct transverse ridges round the bowel, still presenting a mucous surface, sometimes like red currant jelly. The more elevated ridges when cut into were hard and cartilaginous. In the sigmoid and rectum there were large isolated patches of the elevated portions, often surrounded by depressed portions, the bottom of which latter was formed by muscular fibre, discoloured, probably thickened. There was a greyish tint throughout the greatest part of the mucous membrane of the great bowels.

Small intestines healthy; contents of ileum and jejunun green, tenacious, not fœtid. Higher up in the jejunun and in the duodenum there was a tenacious yellowish mucus. In the stomach there were here and there some dotted red patches of softer structure than the rest of the tunic. Liver healthy; bile in the gall-bladder; spleen healthy. The cortical part of the right kidney was somewhat lighter in colour than natural. The lungs were healthy, but many old adhesions, principally on the right side, and to the diaphragm of same side. Heart sound.

Remarks. This patient was treated in January, 1831, for pain of right shoulder, and right side, which were plainly considered to be dependant on the liver. It is however much more probable

that the liver at that time was not affected, but that the adhesions took place between the diaphragm and base of the lungs. It was in fact pleuritis, not hepatitis.

In a paper in No. CXI. of the Edinburgh Medical and Surgical Journal, I have stated that adhesions between the convex surface of the liver and diaphragm are very generally attended with adhesions of the base of the right lung to the thoracic surface of the diaphragm.

My observation since, leads me to qualify this statement, and to say, that when adhesions of the convexity of the liver to the diaphragm are consequent on abscess, then there is the corresponding adhesion of the lung. It is plainly a prospective remedy, similar to those adhesions which patch up perforated bowels; it prevents effusion into the chest by anticipating an egress for the pus.

There is one interesting observation connected with these remedial adhesions, it is that they are not attended with the distressing symptoms which severally mark their idiopathic production. Inflammation of the pleura of the diaphragm is generally an urgent disease. In none of the cases reported by me in the Edinburgh Journal could we have divined its existence. Inflammation of the peritoneum is generally marked by acute tenderness: in case No. II. where it took place in

anticipation of an abscess bursting into the colon, it was relieved by a tight bandage. The same fact may be observed in case No. VII. In the cœcum the mucous coat presented the papillous surface; it was in a condition similar to No. II. with the exception, that there was less softening, and no implication of the sub-cellular tissue. Throughout the contracted part of the bowel there was a more irregular, rugous appearance. I account for this in part on the principle alluded to at the commencement of this paper; the inflammatory action found the bowel contracted, the mucous tunic consequently rugous; it fixed it in that condition, by altering the nature and relations of the connecting cellular tissue. This will account for the irregular surface of the contracted portions; but it is expressly stated, that the sigmoid was not contracted, yet the mucous surface was irregular with transverse ridges coursing round it. In the two situations there was however a difference. It was principally in the contracted part that the puckered rugous surface was general. It was principally towards the sigmoid that the cartilaginous ridges existed.

I consider the lesions to have been different. In the contracted part the eminences were not the result of any actual increment to their molecules, but the result of the anatomical condition in which the mucous tunic was, when first attacked. In the other sites the inequalities were produced by a thickening of the mucous and sub-cellular

tissues. The want of redness of the mucous membrane, and yet the undoubted proofs of inflammatory action, may be remarked, not however as any thing unusual; it is to be observed in several of the other cases.

CASE V.—*Abscesses in the liver-diseased large intestines.*

Francis Wainwright, Æt. 26, Serjeant, 4th Light Dragoons; 5 years in India. Never had hepatitis nor dysentery. June 21st, 1832, had febrile symptoms, oppression across the chest and slight cough, which were removed by leeches, &c. Discharged cured, June 30th. Re-admitted October 3rd, 1832. Seized on the previous day with sense of cold, faintishness, retching, vomiting, and vertigo; followed by heat, pain at left hypochondre, stretching across to the right. Respiration difficult, anxiety, pulse quick, rather strong.—4th, pain severe last night; pulse 96, rather feeble, with a degree of sharpness: the pain is under the ensiform cartilage; secretions from the bowels fœtid, unnatural.—5th, occasional retching; pain on turning and inspiring.—6th, pain when he moves; bowels acted on; evacuations of various colours.—7th, pain returned in the night, more on the right side; oppressed breathing and anxiety; can only lie on his back; no unnatural heat hiccup. Was bled thrice freely, leeched frequently; blistered; took purgatives. After the 7th, occasional vomiting; frequent irritable pulse; sometimes damp cold skin; occasional flushes of heat; occasional apparent amendment. Took camphor, opiates, wine. Latterly he was affected by hickup, but experienced relief from pain. Died October 13th.

It appeared that on the day previous to admission, this patient, who was remarkable for his bodily strength, after an exertion in throwing a heavy weight, felt sudden and violent pain across the hypochondria; was seized with vomiting; and he continued

drinking cold water in his barrack-room, and came into hospital the following day. Habits somewhat intemperate.

Inspection, ten hours after death. Much fat in the integuments of the abdomen. The liver occupied the epigastrium and greater portion of left hypochondre; the stomach completely concealed. All the convexity of the left lobe of the liver, where opposed to the diaphragm, adhered firmly to that muscle. Part of the convexity of the right lobe towards the great fissure was also adherent to the diaphragm; there was one large abscess in the left lobe, closely approximated to that part of the diaphragm where the adhesions had been formed. In fact, the upper wall of the abscess was in parts solely formed by the peritoneum of the liver and by the diaphragm; there was a similar abscess in the right lobe, but the diaphragm did not form the upper wall for so great an extent as on the other side; there were two other smaller abscesses in both lobes; the contents of the large abscesses were in part honey-coloured serum, which flowed out with the thinner parts of the pus. About 1 *lb.* of the thinner secretions in both abscesses. On making a section of the abscesses, they shewed internally a massive flocculent aspect, caused by the firm adherence of the thicker parts of the secretion to the lining membrane of the sac. It appeared as if the bonds of adhesion to the walls of the sac were by means of the normal vessels of the liver, which traversing or hanging loosely into the cavity of the sac became a nucleus to which the secretions adhered. The membrane lining the sac was not thick but firm, and when the secretions were scraped from it shewed a rough granulated surface; the rest of the liver pale, distinctly mottled red and white: in the language of *Andral*, hypertrophy of the white substance. The lower lobe of left lung adhered, but not firmly, to the diaphragm: that of right lung did not so, though part of the adhesions of the liver were to that part of the diaphragm opposed to the right lung. The mucous coat of the stomach towards the pylorus dotted red, otherwise natural—no very marked lesion—no peritoneal inflammation.

In the cœcum, ascending colon, and commencement of the transverse, there were round defined ulcers from the size of a split pea to that of a shilling ; they had all defined prominent mucous edges. In the cœcum there was the greatest number of these ulcers, there the ulcerated surface exceeded the non-ulcerated. The bottoms of all these ulcers consisted of partially condensed, opaque cellular tissue, adhering closely to the muscular tunic; in some few of them there was a thick purulent secretion. In the cœcum here and there a dark-grey colour was observed, with that exception no discoloration round the ulcers. The mucous coat surrounding the ulcers was softened, and thinned; it peeled easily from the cellular tissue. This being done, we had the bare cellular tissue—the site of ulcer shewing a round, slightly elevated surface, prominent at the edges, more depressed within their circumference, each still somewhat above the surrounding cellular level. These edges were cellular tissue, which I had denuded of its mucous covering, which latter superimposed had formed the rounded edge of the ulcer. The disease then was ulceration, and removal of the mucous coat within the circumference of the defined edge. Where the mucous coat was removed, there slight hypertrophy and closer interlacement of the fibrils of the intercellular tissue existed, forming a firm bottom to the ulcer;—the elevated edge, a frame work of still more condensed cellular tissue, with a covering of mucous coat. Beyond the ulcers the cellular tissue undiseased.

In the cœcum, where the ulcers were so close to each other, the whole cellular tissue may be said to have been somewhat implicated—more certainly so at the site of the ulcer, but the diseased action extending beyond, communicated with that thickening dependant upon some other ulcer, and thus involved the whole cellular tissue.

At the middle of the transverse colon, the ulcers were few, small, and like small pox-pits. In the descending

colon, white granules like a millet seed—enlargement of the *mucous follicles*, the rest of the great bowels sound. Two feet of the ileum slit up—no disease. The cœcum, and ascending and transverse colon contained a considerable quantity of consistent, dark-coloured feculence. Lungs and heart healthy.

Remarks. The cause of the acute symptoms in this case probably escapes us: there were no results of recent inflammatory action to account for them; they were not the symptoms either of abscess in the liver, or ulcerated colon. Moreover, we must surely consider the lesions in both these organs to have existed much prior to the date of the fatal illness, to have existed, very much in the condition found after death, at a time when the patient was in the full enjoyment of health and remarkable for bodily strength: they were perhaps connected with the slight illness in June. It may be supposed that the feat of strength on the 2nd instant in some manner, though unrecognized, affected the already diseased organs. This case contrasts well with No. II. The lesions in both were very much the same, yet how different the symptoms. In the one, according to my manner of viewing it, the changes took place and the health remained little disturbed. In the other each successive change had a symptom to mark the date of its occurrence.

It is contrasts such as this which mark the true position of Medical Science: there are two other points of practical interest connected with this

case. 1st. The evacuations were fœtid and watery, very much similar to those frequently seen in remittent fevers, called bilious, and attributed to some error of the liver. Here they were connected with unsuspected ulcerated bowels. Case No. VIII. is another reason for not losing sight of this circumstance. 2nd. It is probable that while the mucous lining was in a state of disease in this case, that the bowels were performing their functions well; at all events we have the distinct co-existence of ulcerated large bowels and healthy feculence. In the records of pathology, there are many cases where defecation during life has been well performed, and yet the large bowels were found ulcerated after death: these facts ought to be borne in mind, and keep us from too hastily concluding that the return of healthy evacuations in dysentery is a necessary index that the disease has been cured.

It is a too common belief that when the function of an organ which has been diseased is again naturally performed, the tissues of the organ have resumed their normal condition. The fact would seem to be that the amount of perfectibility which renders an organ efficient to meet every legitimate demand, is far superior to that which fits it to play its part under ordinary circumstances. The ulcers were probably in the mucous follicles: the implication of the sub-cellular tissue bearing relation to the amount of disease of the mucous coat is again observable. The softened mucous coat was thinned in some places. A condition

similar (according to one view) to the portions of lower level in the colon of No. II. and cœcum of No. IV.

CASE VI.—*Chronic Dysentery, large intestines internally irregular, rugous, gangrened.*

Phillips, Æt. 31, Private, 4th Light Dragoons, ten years in India. Suffered from fever at Kaira. Admitted 11th June, 1830, with diarrhœa; from that period till 20th June, 1832, was thirteen different times admitted into Hospital, either with diarrhœa or chronic dysentery. After last admission became much emaciated; feet œdematous, skin sallow, occasional purging, died 28th September, 1832. During the two years and three months had been 355 days in Hospital.

Inspection, six hours after death. Abdomen contained two pounds of clear straw-coloured serum; the omentum in parts infiltrated with serum, stretched over the intestines, and had formed old adhesions to the left side of the abdominal parietes; the glands of the mesentery and meso-colon dark chocolate-colour, numerous, enlarged, none however larger than a horse-bean. Neither cœcum nor colon had formed adhesions: the whole large bowels contracted and thickened, had lost to a great degree their cells—they hung more loosely in the abdomen than usual, it seemed as if their natural connections had been lengthened, the serous tunic pale washy-looking. The fatty processes of the colon converted into bladdery-looking bodies containing serum. The mesenteric vessels empty, stomach small, mucous coat healthy, the small intestines for the most part somewhat contracted, with here and there distended portions with thinned coats. Jejunum contained tenacious light yellow mucous. Ileum healthy to within a few inches of its termination, where there was internally a dark red portion in part sloughy, the inner surface of the large bowels diseased throughout, irregular, a succession of elevations and depressions, the former presented

a clear transparent, uncoloured mucous surface, edged round with a red line and dotted red here and there. The red line, as seen through a magnifying glass, was a succession of small defined red points. From the surface of these elevated parts there did not peel tenacious mucus, as I have generally seen. Underneath, the cellular tissue was much thickened. The depressed surface varied in colour, from dark to black, in patches of various diameter to an inch and upwards, many of them connected continuous winding amongst the elevated parts, and forming the greater extent of the inner surface.—From these patches a tender pellicle peeled easily, the darker the tint the tenderer the pellicle, in one situation it had in part separated naturally; underneath the pellicles there was a dark red or black, moist, infiltrated surface; interposed between this infiltrated part and the muscular coat there was a layer of pale condensed cellular tissue. It appeared as if the disorganized pellicle had been the remnants of the mucous tunic or an upper layer of cellular tissue. In the rectum, no irregularity of surface, but abraded of arterial red colour, the tint very varying in death. It was like a partially washed out colour in a water-colour drawing.—Liver small, one unnatural adhesion to the left side; when cut into, somewhat hard, much mottled, hypertrophy of the white substance, atrophy of the red.—Gall-bladder shrivelled, contained some dark-coloured concretions, spleen healthy; kidnies small lobulated.—A little serum in the chest and pericardium, lungs pale. Heart healthy.

Remarks. I have not elsewhere seen to the same extent, that dark-red, and in part black, depressed condition, which constituted so extensive a portion of the inner surface of the large bowels in this case. In No. III. there were one or two small patches similar to the black ones in this case. What is the nature of the lesion? Surely not an active phlogoses ending in gangrene.

May it not be more analogous to those petechial infiltrations which in certain circumstances take place in the skin? May it be, that after a time the pellicle above the extravasated patch, from being separated from its normal connections, dies and sloughs off? The irregularity of surface in this case was probably in part produced on the principle alluded to at the commencement of this paper, and more fully dwelt upon at the end of case No. IV. We cannot attribute much of the elevation to the thickening of the sub-cellular tissue, because such thickening also occurred in the depressed portions; moreover, the state of integrity of the villous surface of the elevated portions, did not appear compatible with the existence of much disease.

The state of atrophy of the liver, is that condition of the organ which is generally attended with ascites. The dysentery described by me in the Edinburgh Journal, prevailed in 1830, in the 40th Regiment at Belgaum. I have in that statement, remarked that the symptoms at the commencement were often obscure, that the disease was not ushered in with purging, but frequently with a confined state of the bowels and sense of distension in the course of the colon, and that the dysenteric symptoms followed as a subsequent event. I also hinted, that probably these early symptoms depended upon the implication of the omentum and peritoneal coat of the colon. During the same year and months there prevailed exten-

sively, a bowel complaint in the 4th Dragoons, at Kirkee: its early symptoms however were most generally those of diarrhœa; the dysenteric symptoms appearing subsequently. No. I., III. and VI. all suffered from that endemic, and we see from the absence of all peritoneal adhesions in their dissections, additional reason for believing, that the sense of distension, the occasional constipation in the Belgaum disease, were to be considered as related to the implication of the peritoneal coat. The two diseases were no doubt very different, that at Kirkee probably only inflammation of the mucous lining ending in softening, as in No. I., the disease extending as a subsequent occurrence to the sub-cellular tissue, No. III.

In the Belgaum disease there was acute inflammation, seizing all the tunics of the large bowels throughout their great extent, ending rapidly in disorganizement by ulceration, gangrene and sloughing.

Case VII.—*Dysentery.*

Henry Green, Æt. 36, Private, 4th Light Dragoons, 10 years in India. Had fever twice at Kaira, never hepatitis. Admitted April 21st, 1832, with diarrhœa; discharged April 25th. Re-admitted June 1st, with mild dysentery, got pretty well two or three times, and relapsed slightly; discharged June 26th.

Re-admitted July 15th, 1832, became affected with frequent purging, the previous day had some castor-oil. Has been griped

and had straining, evacuations unnatural, no pyrexia ; Pulv. Doveri and calomel, H. S.—16th. Frequently purged during the night, griping, tenesmus, evacuations contain blood and mucus, constant pain around the umbilicus increased by pressure, slight hardness to the left of umbilicus, pulse 88, tongue nearly natural.—Hirud. xxxvi. part. dolenti: ipecacuanha gentian pil. hydrarg. and pulv. jalap *c. more solito.*— *Vesper.* Pain little relieved by the leeches, no tenseness of belly, he says the pain is easier when he lies upon his abdomen. Has been frequently purged, no straining, stools contain blood, and are copious, some vomiting this morning.—Repet. hirud. 36, and pills at bed time, and following morning.—17th. The pain of belly on pressure continues round the umbilicus and towards the iliac regions ; frequently purged, with straining during the night, stools contain much blood; pulse 96, somewhat sharp, not full, vomits his pills, V. S. ad ʒ xxv. fotus and enema anod. 11 A. M. pulv. jalap. *c.* ʒ i.-Tinct. Hyosciami ʒ i. *c.* Aq. menth. —*Vesper.* Blood not sizy, pulse very feeble some hours after the bleeding, at present 104, irregular, compressible. Purging continues, stools contain blood and mucus ; tenesmus and pain of belly on pressure continue, no tension, but there is a knotted irregular feel. Has vomited a good deal, tongue moist ; anxiety of countenance.—Emplast. Vesicat. mag. abdomini calomel gr. iv. opii gr. iss. statim et repet. post horas iv.—18th. Blister risen well, belly somewhat easier, no purging in the night, two stools this morning, scanty, and consisting entirely of blood and mucus, pulse 108. cal. gr. iv. ipecac. gr. ii. opii. gr. ss. quarter indies.— *Vesper.* Pretty easy all day, vomited the first pill, the ipecacuanha was then omitted, had five or six scanty mucous stools with tenesmus. Pulse 120, feeble, Enema Anodyn. contr pil.—19th. Was ordered yesterday evening calomel gr. iv. opii gr. iiss. every third hour, has taken four pills and had an enema with 100 drops of tinct. opii and gr. vi. acet : plumbi. An easy night, little purged, stools, a reddish water with mucus. Tongue furred, no affection of mouth, vomits occasionally, and is heavy; pulse 120, calomel gr.

iv. opii gr. i. every sixth hour.—20th. Purging not so frequent, two stools this morning, contain some feculence and little blood. Gums becoming tender, seems under the influence of the opium, vomits occasionally. Castor-oil ordered, and mercurial friction, also effervescing draughts. *Vesper*. Several stools from the oil, copious, dark-green, fœtid, streaked with blood; little pain, pulse very frequent: very desponding; Contr.—21st. Was ordered to take during the night calomel. gr. iv. opii gr. iiss. every third hour, and he voided four or five reddish-brown, watery stools, with floating clots of blood and shreddy matter; countenance collapsed, hiccup, drowsiness, gums less affected. Pulse very frequent and small. Contr. omnia. *Vesper*. Seven stools, green streaked with blood, contr. calomel *c* opii gr. iiss. every third hour.—22nd. Stools in part passed in bed, those seen were fœtid, thin, streaked with blood, otherwise as before, contr.—23rd. Collapsed countenance, sinking, five or six stools streaked with blood,—to have wine. Died at noon.

Inspection, five hours after death. Omentum vascular, adhered firmly to the surface of the transverse colon, also to the left side of the cavity of the pelvis, and to the sigmoid flexure of the colon: the large intestines throughout their whole course much thickened and firm. The cœcum had formed no unnatural adhesions. The upper portion of the ascending colon adhered to the concavity of the liver. The commencement of the transverse portion doubled down towards the umbilicus, thence it ascended transversely upwards towards the left side, passing to the left of the great arch of the stomach, to which it was closely bound, it reached the diaphragm, thence after an acute duplicature, it descended closely bound to the left side of the abdominal parietes. The transverse colon had lost its cells; the meso-colon was vascular and thickened, its glands enlarged.

The mucous coat of the ileum for about three inches from its termination was covered with granular lymph, effused on a dark-red ground. The inner coat of the large bowels throughout their whole course had lost every trace of natural texture, the whole surface was irregular, and in many places granular lymph effused, rising in a small fungus. Many large ulcerations following the transverse direction of the bowel, covered with thick consistent pus-like secretion; some of these had a black sloughy appearance in the centre. In the bottom of none of these ulcers did we recognise the muscular fibre. Surrounding the ulcers, and in most part of the inner coat not occupied by ulceration; there was a tenacious red transparent mucus effused; here and there on the surface of this effused mucus was granular lymph. The contents of the large bowels were light-coloured and watery: the stomach was displaced to accommodate itself to the displacement of the transverse colon; its inner surface not examined. Liver healthy; gall-bladder not distended; lungs healthy. Heart healthy, one or two small points of deposit at the commencement of the aorta.

Remarks. It is probable that after the two first attacks of illness there remained a thickened state of the intercellular tissue, which may be considered as intimately connected with the subsequent relapses. It is very plain that any tissue not bearing its natural relations to other parts will be less likely to resist diseased action and less able to recover from it than if it were normally connected. Ulcers when surrounded with much cellular thickening are healed with difficulty, and when healed are very apt to return. This is often seen in venereal ulcers. The same principle holds in the mucous lining of the bowels, its diseases are influenced by the condition of the tissues connected with it.

This is so very evident a law of pathology, that it would be waste of time to multiply examples. The irritability of the stomach in this case was probably related to the displacement caused by the transverse colon.

It was not my intention in this paper to say any thing of the treatment of dysentery, because there are several points connected with it about which I am by no means decided. The treatment followed in this case would seem however to require a few remarks. The case was in part treated by myself, in part not. At the commencement the symptoms were not more severe than in the former attacks, and for that reason were not met in the first instance with that activity which the result proved they demanded. Regarding the change from Mr. Twining's system to calomel and opium, all I can say is, that the patient was getting worse, and the former mode of treatment had not my full confidence. I do not mean by this that I disapprove of the ipecacuanha and gentian system, I am disposed to think far otherwise of it: but as yet my experience of it in the acutest form of dysentery in Europeans has been very limited, and for that reason I shall not say any more about it at present. The large doses of opium were evidently in imitation of Cheyne of Dublin, with however it appeared to me a slight misconception of the principle on which that author recommends them. I cannot say that I saw any good result from that treatment.

CASE VIII.—*Dysentery.*

William Whitaker, Æt. 21, Private, 4th Light Dragoons. A recruit, two months in India. Had bowel complaint at the Colaba depôt. Admitted into Hospital, 4th Dragoons, August 5th, 1832. Arrived that day from Bombay: had been affected with purging without pain, on the march. On the evening of the 4th, griping, straining, and some heat of skin. Abdomen on admission full, with some uneasiness on pressure in the course of the colon. Was bled, took calomel and opium, and castor-oil. On the 7th, stools feculent; no uneasiness of abdomen: continued complaining principally of debility till the 23rd August. His pulse for the most part frequent; skin hot and dry; tongue moist and often quite clean, there was sometimes a remission in the course of the day, very often not; sometimes sweating during the night: the only symptom which might be considered as locating the disease was that the bowels were more acted upon by the medicines given than is usual, and the report of the 17th was thus: continues as before, with hot skin; restless during the night. Several watery stools without pain, from blue pill and calomel and ipecacuanha, feculent, but with a few streaks of blood. From the 23rd to 31st, sweated much every night; no fever during the day. From 3rd September to 14th, gradually gained strength, and on the latter was sent to the convalescent ward, where he remained a few days. It subsequently appeared that during the residence in the convalescent ward there had been uneasiness of the bowels, of which he did not complain at the time.

Re-admitted September 22nd, stating that for the last three days he had purging and other dysenteric symptoms. It would be tedious to detail the symptoms and treatment. The disease pursued an unmitigated course, with very much the same symptoms as No. VII.; there was never much complaint of pain. He died on the evening of the 3rd October. Treatment: free V. S. and leeching, blisters, calomel and opium

and friction ; no salivation on the day of his death. Evacuations grumous, bloody.

Inspection, nine hours after death. No distension of abdomen ; liver enlarged, occupied the epigastrium and part of left hypochondre. The enlargement was chiefly of the right lobe. The stomach, pushed into the left hypochondre, left the duodenum previous to its doubling under the pancreas, uncovered by any viscus ; parts of the pancreas were also opposed to the anterior parietes. The omentum, greenish, vascular, extended into the pelvis, embraced closely the bowels, but did not form any adhesions. The intestines had a greenish tint ; the colon had not lost its cells ; the transverse colon somewhat contracted ; the descending portion more so ; the sigmoid not contracted ; the large intestines felt firm and hard on pressure. The transverse colon, at its commencement doubled down, was for a short distance bound closely by old bands of adhesion, to the left side of the upper part of the ascending colon : thus there was a sharp angle in the course of the bowel. With this exception, no adhesions ; the sigmoid flexure of the colon was in the pelvis, interposed between the rectum and the body and fundus of the bladder ; vessels of the mesentery, also those of the serous lining of the pelvis somewhat turgid. The stomach contained green watery fluid ; a large patch of the mucous coat at the cardiac extremity, mottled red ; the red points, the arborescent terminations of vessels ; there was perhaps some softening at this part. The small intestines were opened throughout their whole extent. Contents of the ileum and end of jejunum dark-green, consistent, tenacious. On washing this off from the surface, the ileum displayed an olive-green tint, with minute granular aspect, as if fine sand had been sprinkled over a moist surface. This opaque, minute, white or tinted green granular deposit extended throughout the whole course of the small intestines, with this variation that in the ileum, where the quantity of mucous adherent to the membrane was not great, the granules were applied immediately to the mucous

surface, and stood out in very slight relief from it. The jejunum had a greyish tint, and there and at the end of the duodenum, where the secreted mucus was more abundant, the opaque granules formed a constituent of the secretion, were suspended in it, and with the back of a scalpel could be scraped along with the mucus from the surface of the membrane. In the ileum there were some abraded portions, and occasionally a greater than natural softness of the mucous tunic. In the jejunum were some honey-combed patches running at right angles to the valvulæ conniventes, an appearance, as if a more intimate adhesion had taken place between the mucous and muscular tunics, and caused a slight puckering at those sites. No redness in any part of the mucous tunic of the small intestines.

The colon, principally the ascending, and the cœcum, contained much dark-red grumous, tenacious matter, to remove the tint of which from the inner surface of the bowel required much washing; throughout the whole course of the large bowels many and irregular ulcerations. In the cœcum and ascending colon there were ridges left with a mucous surface; these ridges ran transversely, their centres frequently excavated by ulcerations following the course of the ridges. The bottom of the portions between the ridges generally consisted of the muscular coat. The cellular tissue in the ridges thickened. This portion of the cœcum and ascending colon when floated in water shewed long irregular, tender, thin membranous films attached to the ulcerated sides and centres of the ridges, thus giving to the bowel when floated a flocculent appearance. In the transverse colon some distinct round ulcers, having the muscular coat for their bottom, at their edges the mucus tunic thickened. In the transverse and descending colon there were patches of gray mucous tunic, softened, not otherwise disorganized; there were also large portions where all appearance of mucous coat had disappeared; nothing but patches of exposed grayish muscular fibre, with white shreds loosely adherent to it: this was most remarkable at the

lower part of the descending colon and at the sigmoid flexure. In the rectum there were blackish shreds not formed by the muscular coat, but superimposed. The liver healthy in structure. The gall-bladder contained good bile; lungs healthy.

Remarks. After the first few days of this man's illness, the symptoms referrible to disease of the bowels were got rid of, and the case seemed to be fever without any local complication. However, during the progress of the disease there were occasional symptoms, which led to a different diagnosis; the belly was sometimes full, there was now and then a little streak of blood in the evacuations, and altogether a greater looseness of the bowels than could be accounted for by the remedies employed. From the persistence of the febrile symptoms for so long a period, the subsequent information that during his stay in the convalescent ward there were symptoms of affection of the bowels, and the final result, we must conclude that the febrile symptoms in the first illness were to a certain extent dependent on some local cause. It may have resided in the large bowels, or in the small, where there was evidence either of former or existing disease. The morbid appearances of practical importance were the enlarged liver, filling entirely the epigastric region: the pancreas and part of the duodenum opposed to the anterior abdominal parietes. The honey-combed patches described as existing in the jejunum, is a condition of the patches of the glands of Peyer, which has been describ-

ed by Billard as their first degree of development, under the name of "plaques gauffrées." Billard considers that the patches admit of three degrees of development without being diseased. The first and third I have seen well illustrated in a case of fever in a native lad, fatal from co-existing bronchitis: the appearances are thus described in my notes of the dissection: "In the jejunum for the most part the mucous membrane seemed healthy, but here and there on the free side of the intestine (*i. e.* the side unattached to the mesentery) there were peculiar patches which traversed the valvulæ conniventes at right angles, some of them were from one to two inches long and one inch broad; there was no change of colour, no thickness, their level was somewhat below that of the rest of the membrane, and felt firmer; their surface had a shallow honey-combed appearance, it seemed as if these marks were produced by a here and there firmer adhesion of the mucous tunic to the subjacent one, so that the membrane in these parts was bound down, made rugous, not free as elsewhere. At the upper part of the ileum the black dotted patches described as the third degree of development of the glands of Peyer began to be apparent: as we descended the bowel they became more frequent, and of greater extent, till at the termination of the ileum for upwards of two inches above the valve the membrane was entirely occupied by this appearance. These patches stood in slight relief from the surface of the membrane, and when the tunic was

raised up, the black dots were carried along with it."

CASE IX.—*Ileus, with granular effusion on the inner surface of the ileum.*

Mrs. Horton, Æt. 37, admitted into Hospital September 6th, 1832. A few months in India. Had been for some years subject to occasional pain in the abdomen, with constipated bowels; good health in the intervals. Had an attack some months ago in Bombay, also another about ten days since, from which she recovered under the use of purgatives and leeching.

In the course of the day of admission, had been affected with violent pain of abdomen; bowels constipated; belly tender. Little vomiting. Actively treated, leeched, blistered. Some dark-coloured stools procured after the use of active purgatives and enemata. Pain undiminished, insensibility; moaning and sinking on the 7th, died early on the 8th.

Inspection, six hours after death. Abdomen distended and tense, the integuments loaded with fat; a small quantity of serum in the cavity of the peritoneum. On the incisions being made, the intestines protruded, distended with gas and fluid; the ileum externally, principally at its most dependent parts, was dark-red, and vascular, with very slight and partial exudation of flakes of lymph. There were old firm adhesions at the upper part of the ascending colon, which connected it firmly to the whole surface of the gall-bladder, and puckerdly and firmly to the thin edge of the right lobe of the liver; the gall-bladder shrivelled, contained no bile, but was filled with small angular earthy concretions. In portions of the descending colon and sigmoid flexure there were contractions for some extent, but no unnatural condition of the tissues, and not more contraction than we have often seen in bodies in which no such symptoms had existed; the lower end of the ileum to a considerable extent, also the cœcum, were laid open.

Where the peritoneum was discolored, there the inner surface of the ileum presented a similar discoloration, and there more especially and elsewhere also, for the extent of about two feet, there was effusion on the inner coat of the ileum of fine granules, forming an aspect as if a moist surface had been sprinkled with fine sand: this effusion, with the thin mucous tunic, peeled easily off with the nail; the large intestines also, in part distended, contained, as well as the small, thin light-coloured feculence; no scybalous matter, no obliteration of the cells of the colon; the upper part of the descending colon marked with red dotted softened patches of the mucous membrane; in the contracted portion no disease of the tissues. Liver somewhat dark in colour, otherwise pretty healthy; uterus of natural size, some vascularity of its peritoneum; no exudation.

Remarks. This is a case of Ileus fatal with peritoneal inflammation of small extent, and at an early stage; from the symptoms we might have been justified in anticipating termination in gangrene. Perhaps Dr. Abercrombie, in his theory of Ileus, has been too easily satisfied with a condition of the small intestines as an explanation of symptoms, the antecedent of which is rather to be looked for in the large bowels. I do not mention this as an argument against the views of that most able observer. I feel that we are too vaguely acquainted with the individual offices of the respective portions of the intestinal canal, to give it that weight. The granular effusion described as existing in the ileum I have now met with in four different instances, and in each under different circumstances. I shall content myself with merely stating them now, leaving any conclusion that might be drawn to some future occasion. In Case No.

II. the granules occupied part of the colon, and formed a constituent of the mucus secreted from an hypertrophied tunic. 2. In Case No. VIII. the granules were met with throughout the whole course of the small intestines. Where there was considerable secretion of mucus, there the granules formed a constituent of that secretion: where little secretion of mucus, they stood in slight relief from the surface of the tunic, otherwise nearly healthy ; it was a case in which there had been troublesome protracted febrile symptoms. 3. In a case of cholera, fatal, with symptoms of Ischuria Renalis, already forwarded to the Society, the granules were found in the jejunum, associated with the presence of lumbrici and slight softening of the mucous lining. In the present case, the granules were found on a red, undoubtedly inflamed mucous tunic, partaking in its colour : this was not the case in any of the other instances. In a case which I recollect in the Royal Infirmary Edinburgh, and which is reported Case No. 90 in Dr. Abercrombie's work, there was an appearance somewhat similar at the end of the ileum. It differed however from the cases above reported, in the granules being more flaky, and only found where the membrane was vascular, and undoubtedly inflamed. The appearance also differs from that frequently seen in the large bowels in cases of acute dysentery, No. VII. for example, the granules are much smaller and more sandy.

Bombay, July 24, 1833.

CASES

OF

CHRONIC DYSENTERY

TREATED WITH

SULPHATE OF COPPER AND OPIUM.

By W. W. RALEIGH, Esq.

Presented April 6, 1833.

There are few tropical diseases more harassing to the patient or physician, than those sub-acute conditions of the mucous membrane of the large intestines, so often the sequela of acute dysentery, and so much more frequently idiopathic, in constitutions which have long been subjected to the effect of a hot climate, comprehended under the very general appellation "Chronic Dysentery," a term made use of, with little discrimination, in designation of various grades of inflammation, which in practice require the nicest distinction.

The symptoms of the disease and appearances after death are such, as to enable us to pronounce, without hesitation, that dysentery, at any stage, is

inflammation of the mucous membrane lining the large intestines :—the unnatural appearances met with in the immediately adjacent structures being attributable to the local affection. Such for instance as enlargement of the mesenteric glands, opacity, and deposit of coagulable lymph between the folds of peritonium, and the extension of redness for a short way up the smaller bowels; for in no instance, of a large number that I have carefully examined, have I discovered the ulcerative process to be continued into the ileum.

Although dysentery is sometimes co-existent with affections of the liver, or other viscera, such complicated states of disease cannot be classed under the head of simple dysentery, nor could we with more propriety consider the two diseases as dependent one on the other, than common diarrhœa with affection of the lungs, merely because the former is an attendant on some morbid conditions of the latter. Entertaining this view of the nature of the disease, we may feel satisfied that inflammation assumes as many different characters and gradations, in the mucous lining of the colon and rectum, as in a similar tissue elsewhere situated; gives rise to exactly similar results, and calls for an equally exact definition, and the same modifications of treatment. How truly absurd and unscientific then, does it appear, to attach to any one medicine, the property of a specific, in a malady so varying in its forms, that whilst at one period rigid antiphlogistic measures

are demanded for its relief, at another the most opposite remedies are found to be essentially beneficial.

Our diagnosis in this disease is very imperfect, and we are in possession of but scanty means of deciding on the actual condition of the parts involved, or the changes which are from time to time taking place. There are few symptoms which may be considered, strictly speaking, as peculiar to dysentery. All will admit the necessity of taking into consideration every deviation from health in endeavouring to form a correct judgment of the state of the patient ; but those who have seen much of the disease will have come to the conclusion that the sympathy of the system with the local derangement is very irregular, and little to be depended on as a guide to our treatment. I know but of two indications which may be relied on as generally leading to a satisfactory conclusion, the appearance of the ejected matter per anum, and the seat and degree of severity of the abdominal pain and tenderness, each of which however is occasionally deceptive ; but although we may not be able to decide on the exact extent to which the disease has proceeded, we may usually form a tolerably correct idea as to the character of the existing inflammatory action, although we may not in our present ignorance be able to connect prevailing symptoms with the more delicate changes that are taking place, or have recently occurred. Observation has so far instructed us, that we usu-

ally can, from a history of the complaint, form some opinion as to the probable extent of mischief. Not entering on a particular description of the morbid changes recognized as the result of sub-acute forms of dysentery, I may briefly remark that we usually find in our post-mortem examinations proof of inflammations having been the essential nature of the disease:—a thickened pulpy mucous membrane of pink or purplish hue, with or without ulceration, varying in extent and appearance, effusion of lymph between the coats of the gut, enlargement and induration of the glands in the vicinity. In other cases (generally protracted ones), the parieties of the intestine appearing to have participated in the general emaciation, the gut very thin, its mucous membrane pale, velvetty, and as if it had been macerated in fluid for some time, with here and there traces of vascularity, ulceration, &c. &c. &c. Now it is in these particular stages of the disease, so differing in character from the more acute forms, that we derive advantage from astringents, and particularly from the sulphate of copper in combination with opium, a remedy for the introduction of which into practice in this complaint we are indebted to that very scientific and independant physician Professor Elliotson. An extensive trial enables me to bear testimony to its truly magical effects, often under the most unpromising circumstances, both in European and native constitutions: much however as I appreciate the virtues of this medicine, I find, like most others, its administration must be guided by

judgment and restricted to particular stages of the disease. I must respectfully dissent from Dr. Elliotson in the opinion of its being applicable to the more acute forms. I cannot concur with the learned professor in recommending its use, when evidences of the existence of acute inflammation are so decided as was the case on some occasions in which he prescribed it, as stated in "The Lancet," (a publication to which the exiled medical practitioner is most especially under obligation.) Pain and tenderness of the abdomen, together with bloody mucous stools, in my opinion, contraindicate the adoption of the practice, and demand a strictly antiphlogistic treatment, continued until every trace of acute disease has been dispelled.

I have endeavoured to collect some distinguishing signs whereby to decide on the time and state at which we might expect advantage from using the sulphate of copper and opium; and although I am not prepared to offer any positive rule for guidance, I think I may assert that, I have found this medicine most beneficial in cases where the evacuations were of a pultaceous or pulpy consistence, as if in a state of fermentation, and where they were fluid and of pale color: in those instances in which a mahogany or beet-root-colored tongue has been a remarkable symptom, I have invariably found it of great service; as also where the tongue has been unnaturally deficient in color and soft in structure. Tenderness, and soreness in the course of the colon, if not acute, as where the disease has

been of long standing, constitute no objection to the administration of this remedy; but where these symptoms are accompanied by evacuations of bloody mucous description, which are the positive indications of high inflammatory action, I presume in this climate at least, it would be hazardous to pursue any other than an anti-inflammatory course of practice.

In cases subjected to the treatment with sulphate of copper and opium, there is, after a time, a disposition to indolence on the part of the intestines, and deficiency of the natural secretions of the bowels; the fæces become of rather a clayey consistence, and are not freely carried off. I have therefore found it advisable to administer occasional mild laxatives, but only in such quantities as were considered just sufficient to unload the canal, without producing purging. Castor oil, infusion of senna, and sulphate of magnesia, or sulphur, usually have the desired effect, without irritating the bowels; and an enema is often of advantage: a course of mild alteratives at night, followed by a chalybeate in the morning, is sometimes required to restore the regular action of the alimentary apparatus after the dysenteric affection has been cured. Warm clothing, and PARTICULARLY A FLANNEL PETEE and stockings, are indispensible in every state of dysentery: the former (the petee) should ever constitute part of the dress of a resident in warm climates, and once adopted never omitted to be worn; a bland diet should generally be ad-

hered to, but in cases where little irritability of the bowels exists, soft solid food often agrees better. A judicious allowance of port wine or beer is occasionally called for, but only under circumstances of extreme debility and prostration.

During the use of the sulphate of copper, where there is soreness on pressure at the Cœcum, or any part of the Colon, the daily application of a few leeches, followed by counter-irritation, very much assists in the cure; in delicate persons the use of a stimulating liniment, or the emetic tartar ointment, continued so long only, as to produce redness of the cuticle, is preferable to the more severe effect of the emetic tartar plaster, until pustules are occasioned, or the common blister, and is never objected to by the patient.

The following abridged cases of Europeans are taken promiscuously from a large number treated on the same principle, and in a great proportion of instances with equally good effect: the patients of the hospital of the Calcutta Native Militia have afforded me ample opportunity of trying the practice on the natives of Bengal, who are particularly subject to dysentery, which even from its commencement assumes but a very sub-acute disposition; and with the most satisfactory results.

Case 1.—A delicate female, Æt. 20 years, had bowel complaint five months. General health

much impaired, and she is emaciated and weak. The dysenteric symptoms are tenderness at right iliac region, and in course of transverse colon ; frequent scanty stools, composed of mucus and blood.

Treatment. Mild antiphlogistic.

After a fortnight, soreness in course of colon remains ; passes nine stools at night and four or five in the day, of pale frothy matter like yeast. Tongue has an unnaturally red color, like beet-root.

Prescribed Cupri Sulph. gr. ss.
G. Opii gr. ss. ter die.

Produced griping and tenesmus ; the quantity of copper reduced to

Cup. Sulph. gr. $\frac{1}{4}$.
G. Opii gr. ss. ter die.

This prescription taken without inconvenience for three days, at the expiration of which time passed four stools at night and one in the day.

Cupri Sulph. gr. ss.
G. Opii gr. ss. ter die.

No uneasiness from the increased dose of copper. After three days further use, had only two stools at night, of thick consistence and pale colour. She continued to take the same prescription. ℥ ss. of castor oil now being administered every fourth day, for fourteen days ; at the end of this time, passed only one natural evacuation in 24 hours. Medicine discontinued. Remained well.

Case 2.—A man, Æt. 26. Six years in India. During the whole time subject to bowel complaint. Has laboured under his present attack of dysentery ten months. Reduced to an extreme state of emaciation and despondency; he passes from 20 to 30 light-colored stools, with a mixture of greenish and reddish matter, and of frothy consistence during the 24 hours, attended by tenesmus; there is tenderness in the course of the colon, particularly at the cœcum; and first bend of the transverse portion. His tongue is of mahogany color; has prolapsus ani.

Bowels evacuated by a dose of oil and domestic lavement.

Following day, June 3rd, 1832.

℞. Cupri Sulph. gr. ss.
G. Opii gr. i. ter die.

And emetic tartar plaster over the right iliac region.

12*th*. Only four stools in 24 hours.

26*th*. Flatulent; passed seven frothy stools.

Injection and castor oil.

27*th*. Cupri Sulph. gr. i.
G. Opii gr. i. ter die.

July 1*st*. Two stools in 24 hours.

10*th*. General health wonderfully improved; two stools in 24 hours, still of pulpy consistence.

Cupri Sulph. gr. iss.
G. Opii gr. i. ter die.

20*th*. Becoming stout: one stool in 24 hours. Tongue of tolerably natural color; tenderness of the belly has entirely left him, and prolapse of rectum relieved. Discontinue the medicine.

August 1*st*. Suffers from flatulence, and costiveness.

R. Pil. Hydrarg.
Pulv. Ipecac. āā gr. i.
Pil. Rhei Comp. gr. iii. O. N.
R. Infus. Sennæ.
Infus. Gentian. Comp. āā ʒ iss. P. M.

He continued in hospital through August, when he was discharged in robust health.

The two foregoing were extreme cases, which had been for a long period under scientific treatment, and well regulated diet, and course of life, without benefit; consequently no credit is to be attached to a change of habit or diet, which in the next case may have had some share in the cure.

Case 3.—A soldier, Æt. 30. Had dysentery four months, generally eight or nine stools in the day, and four or five at night: emaciated, features puckered.

Pulse feeble; skin unnaturally cool and blue; no tenderness at any part of the abdomen, the inte-

guments of which are shrivelled and feel like leather. Tongue of beet-root color.

A dose of oil evacuated several frothy light-colored stools.

Cupri Sulph. gr. ss.
G. Opii gr. ss.
Ext. Gentian, gr. iii. ter die.

After three days, had but one stool in 24 hours, of yellow natural fæces: during the subsequent ten days, passed one or two stools in 24 hours, and regained a healthy appearance.

Case 4.—An old man, 25 years resident in India. Has had dysentery for fourteen months, and taken various remedies without benefit; there is slight soreness at the cœcum, transverse colon, and in the situation of the sigmoid flexure. Stools frequent, 12 or 14 at night, and two or three in the day: he has within the last few months become much emaciated and weak: the stools are fluid, of pale yellow colour: the tongue pale and soft.

Took Cupri Sulph. gr. ss.
G. Opii gr. ss. ter die.

For six days: stools less frequent.

Cupri Sulph. gr. i.
G. Opii gr. ss. ter die.

Continued for five days; passes only three stools at night, and two or three in the day.

Cupri Sulph. gr. iss.
G. Opii gr. i. ter die.

Taken for nine days longer, when he was considered cured: passing only one healthy fæcal stool in the day, none at night, and feeling quite well.

March 5th, 1833.

ON

THE PENDULOUS TUMOR OF THE EAR

COMMON IN NIPAL.

By M. J. BRAMLEY, Esq.

Presented March 9, 1833.

In the Appendix to the 6th volume of the Transactions of the Medical and Physical Society of Calcutta, is a brief notice of a disease which is prevalent in the valley of Nipal, termed by Dr. Campbell, the author of the paper, "The Pendulous Tumor of the Ear."

I purpose in the following remarks to give some additional account of this singular disorder, which I have drawn up from notes made from actual observation during my sojourn in that country.

Pendulous Tumor of the Ear.

The disease consists of one or more encysted tumors apparently arising from, or situated on, any portion of the *pinna* or external ear.

It rarely happens that the disease is confined to one side only, and it is not uncommon to see

six or seven, or even more, tumors in one individual. Perhaps the most favoured spot for its development is the *lobulus*, particularly where there is but one tumor; but if there are more, they are found indiscriminately attached to any portion of the fibro-cartilaginous plate of the ear. There is no particular period of life which distinguishes its origin, as men, women, and children, may alike be seen the subjects of it.

A strange feature in the history of the disease is the circumstance of its being found only amongst the inhabitants of a certain part of the valley of Nipal; such at least is the concurrent belief, and so far as my personal inquiries were concerned, (which however were limited,) the fact receives confirmation. The name of this place is Neel-khent, a small village situated at the base of mount Sheopoorie, which, with its environs, may occupy one square mile. In respect to the manners, customs, and diet of the inhabitants of this part, they are in all particulars the same as those of other parts of the great valley of Nipal.

The existence of the disease is of sufficiently long standing to prevent any date being traced of its first appearance. It is rarely, if ever, productive of constitutional disturbance, and as it attacks exclusively the labouring classes, it is usually left to take its own course. Its chief disadvantage is the extraordinary deformity it occasions; for whether the disease is matured or not, its growth,

from the commencement, is so rapid, that a tumor of two months old can seldom escape common observation.

It is first notified by a small firm and elastic eminence on any part of the external ear, which frequently in the course of a month or two enlarges to the size of a pigeon's egg. At this time it would appear to be nothing more than a common encysted tumor, containing, as I have ascertained by puncture, a white curdy fluid. It is moveable, with a broad base. Sometimes the outer skin is discoloured, assuming a bluish hue, and studded with a net-work of minute vessels; in such instances, the tumor is painful on pressure, and more remarkable for the rapidity of its growth, than where the skin retains its natural appearance. In some, the tumor is soft, in others, it is hard; but these varieties probably depend on the thickness of the cyst. With little alteration in these appearances, its size continues to increase, till at length the base loosens and detaches itself from the cellular tissue from which it has emanated; the ear is then drawn downwards, or otherwise displaced, by the weight of the tumor, which now becomes pendulous and generally ovate shaped. The size varying in different subjects, in some not larger than a small orange, while in others it may reach to the point of the shoulder, maintaining at the same time a proportionate bulk.

At this, which more for the sake of arrangement than necessity, I designate, the first stage of the disease, these appearances may, or may not be preserved in a greater or less degree for a series of years, but it more commonly happens that the cyst loses its uniform firmness and elasticity, by which the shape of the tumor becomes altered.

A gentle pressure of the finger is sufficient to detect this apparent change of structure in the cyst, some parts being much softer than others, and owing to the pressure of the contents on these, the thinnest parts of the cyst, an irregularity of surface is produced. This partial absorption of the cyst may be said to constitute the second stage of the disease. Before, however, this period arrives, it is more than probable that new tumors will have sprung up, on other parts of the same, or opposite ear, and in more than one instance, I observed that these originated from the skin occupying the most depending part of the tumor already formed, whereby a succession of these unseemly appendages, is produced.

The third stage is that, where the tumor loses the entire of its elasticity, and becomes soft and flabby to the touch, considerably diminished in size, and retaining little or no trace of its former shape. This is almost the invariable appearance at an advanced period of life, though in some middle-aged persons, this stage may have reached one or two tumors, while others may not yet have at-

tained the second. The disease cannot be said to have run its course, till the whole of the contents of the cyst are absorbed, when nothing remains but a shapeless mass of thickened integument, which from being now and then pectinated at its edge, adds to its ludicrous and novel appearance, while the attachment of the morbid growth is now so loose that it moves to and fro, in conformity with the ordinary motions of the body

As it is one which rarely produces any constitutional disturbance, but causes a deformity, for which the subjects of it care nothing; the greater the expedition in effecting its removal, the more readily will the patients submit to be treated; and nothing will effect this so satisfactorily as the knife, which if employed at a proper time, will always be followed by a radical cure. The second stage of the disease is by much the preferable time for this, as the tumor will then have become pendulous, and its base loosened and contracted, so that it only requires one stroke of the knife through this part to effect its riddance. The difficulty of determining to what extent the tumor will reach, is the objection to delaying beyond this period, and it is less advisable to operate during the first, as it would then be requisite to dissect out the entire cyst from its firm base. Moreover the rudiments of new tumors

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Note. A set of water colour paintings was presented to the Society, intended as illustrations of the disease in its various stages.

may already exist, which would subject the patient to a series of operations. In all cases the artery which nourishes the disease, requires to be secured.

In offering a few remarks on this singular disorder, the difficulty of arriving at any conclusion as to the probable cause of its production is obvious. The natives themselves encourage the belief that it is wholly attributable to some impurities in the water which they drink. This supposition, I apprehend, is merely adopted by them, in consequence of a supposed connection between this disease and Gôitre, and probably from a certain degree of general resemblance, rather than as the result of anything like systematic research or comparison. They seem pleased to refer all diseases of dubious origin to one and the same cause. The water which the inhabitants are in the daily habit of using, is that which is supplied by the Bishenmutti river; and in order that its qualities might be fairly tested, a small quantity was brought to Calcutta, which was submitted to a minute analysis by Mr. J. Prinsep, and was found to be as follows:

Name or locality.	Appearance on opening the bottle.	Specific gravity; pure water being 1000.00	Salts on evaporation of 1000 parts.						Result.
			Insoluble deposit on boiling.			Soluble Salts separate.			
			Carbonates of		Sulphate of Lime or Silex.	Sulphate of soda.	Muriate Soda.	2. of iron.	
			Lime.	Magnesia.					
Bishenmutti river.	Yellow tinge.	1000.03	0.03		none.	none	none	none	pure.

As I have stated that the disease is scarcely known to exist among the inhabitants of other parts of the valley of Nepaul, it is reasonable to suppose that its origin must be referrible to some local cause; and, *â priori*, it might be inferred, from the very limited space which distinguishes its prevalence, that, this cause, be it what it may, would on a slight inquiry, be easily revealed. There is, however, one material obstacle, to all speculation on this head, which is, that neither from the locality or topography of the place, nor from the manners, customs, diet, and general appendants of the inhabitants, would there seem to be any one obvious circumstance capable of being construed into a cause, and to which other districts and their inhabitants are not equally liable. It is quite certain that the disease has no connection with Gôitre, since many instances may be seen, where these diseases arise independently of each other, though many may also be found in which both diseases exist in the same individual. Animals are not subject to it, as they are to Gôitre, and that to a very considerable extent in Nepaul. Women and girls, however, are certainly more commonly affected by the ear tumor than men; indeed, I do not recollect having seen an instance among the latter: but in saying this I by no means wish it to be believed, that they are altogether exempt. Without asserting that the disease has any positive hereditary disposition, it may be inferred from the examples I have selected, (a mother and her daughter,) that

it is at least not altogether free from hereditary tendency*. This is, however, the only instance in which I have traced the connection between a mother and her child, though had my opportunities for inquiry been more extensive, it is very probable that I might have found the occurrence by no means uncommon. The bare fact, however, would be of little weight as accounting for the origin of the disease, since the children being born and reared under precisely the same circumstance as their parents, would in itself be a sufficient reason to account for their being liable to the same diseases. I may mention too, that I have seen three children, all girls, under the age of adolescence affected by the disease, whose parents were free from it: and I was credibly informed, that mothers and grandmothers have it, in whose progeny, no trace has ever appeared.

On the pathology of the disease, I have no observations to offer, for with the exception of one small tumor which I removed, and two which I punctured, I had no opportunity of ascertaining what varieties the morbid structure assumed. The contents of these three were of a thick curdy nature, such as is recognized by the term *Atheromatous*. My successor, Dr. Campbell, however, has found that in tumors which have approached maturity, the structure very closely resembles Mammary Sarcoma, and it is more than probable that extended investigation will shew in their

* This refers to the drawings.

consistence and composition numerous varieties. Being myself under the firm impression, that in the first instance, they were small encysted tumors, and bearing in mind Sir A. Cooper's assertion, that this species of tumor originates by a cutaneous follicle becoming obstructed so as to be unable to discharge its sebacious contents, I was led to make a careful search for its capsule, but never was able to trace it. Had such, however, been discernible, it would merely afford the means of arriving at the immediate cause of the disease, while we are still left to conjecture, touching the predisposition that is present, for the formation of the tumors, since there is nothing to account for the peculiar action or irritation, which must exist, in the part from which they occur. I may here add, that in all the instances I saw or heard of, these tumors were never known to arise from any other part of the body, save the external ear. This last fact, somewhat shakes my belief in the notion, that they are common encysted tumors; and so likewise does the result of Dr. Campbell's dissections: since the fact is beyond doubt, that encysted tumors are capable of being formed in all the textures of the body, (even bone is not exempt, for there is one accredited case in the Medico-Chirurgical Transactions.) But it must of course be admitted, that the most apt parts for their development, are of the softer kind, such as, and perhaps more especially, the sub-cutaneous adipose stratum of the head or extremities. There is another distinction

between the ear tumors and the common encysted tumors of other parts, which is entitled to notice.

To shew this comparatively, I may briefly notice what common observation confirms, viz. that the common encysted tumors are proverbially slow in their growth; particularly those which are believed to be congenital. While in these ear tumors, no sooner is the patient aware of their existence, than their growth is observed to proceed with great rapidity, till they reach maturity.

As the disease is seldom if ever known to be productive of any constitutional disturbance, or causes any sensible effect beyond the part itself, it may be regarded as of a purely local nature. The only exception I have heard of, fell under the observation of my predecessor, the late Dr. Macra. In that case there had been originally but one tumor, which in course of time enlarged to the size of the patient's head, its base extending in proportion to its bulk, so that half the cheek became involved in its attachments. The surface was irregular, with here and there some discoloured spots, over some of which, the ulcerative process had commenced, from which appearances I infer that the disease partook of a malignant character.

ON THE NUMEROUS

CASES OF APOPLEXY,

WHICH OCCURRED DURING THE HOT SEASON OF 1833,

AT

CHUNAR.

By A. K. LINDESAY, Esq.

Presented August 3, 1833.

The following memoir records invarying want of success in treating the apoplexy of the hot winds: still I deem it a duty to state the circumstances which have lately come under my observation, as illustrative of the effects of great heat on the European constitution.

The hot season of 1833 commenced early, and continued long; the temperature of the months of May and June, as more particularly connected with my subject, will be found in a tabular form below. Towards the end of May, (when 18 days of easterly wind had been succeeded by a scorching west wind,) before the Europeans became seriously affected, sudden deaths among natives were

daily reported in considerable numbers; from all I could learn most of these last dropped down dead, some at their usual labor, some after exposure and excitement during the Moohurrim, and others in their houses, without any apparent illness, or any premonitory symptoms. At last, it began to attack the Europeans, and in the course of the months May and June, but chiefly from the end of May till towards the end of June, seventeen cases of apoplexy had proved fatal among little more than 200 men: the young, the old, the drunken, and the steady; those habitually exposing themselves, and those who were careful, were indiscriminately attacked; in almost every case the accession was sudden, and in only one case was one side of the body more paralyzed than the other. However, instead of attempting to generalize, I shall proceed to give the abridged details of twelve cases, in which the disease was seen during life, and the body inspected after death; the other five from being complicated, or equivocal, I shall simply glance at.

It may be premised that of the sober men attacked, most had been many years in a tropical climate, and from the habits of European soldiery, it may probably be inferred, that in their day they too had followed the multitude.

Case 1. Serjeant W. Schenk, Veteran Co. Æt. 65; 37 years in India. An active old man, much in the sun, and given to occasional tippling.

May 29. Admitted after evening visit, without any particular complaint, but hot and uncomfortable; had been drinking during the day. He was bled by the Apothecary to 12 oz. with relief, but shortly after was observed to be comatose. I saw him at $9\frac{1}{2}$ P. M., found him comatose, convulsed, muscular twitches affecting both sides equally, stertor, skin warm, pulse full.

Shaved head, applied cold, cupped temples, applied sinapisms to legs, injected purging enema, gave a draught with sp. amm. arom. and tr. rhei, and opened jugular vein; however, the pulse soon became tremulous, and a few oz. were only drawn; a second enema was administered, no fæces followed. He died about midnight.

This man had inguinal hernia of both sides, always reducible by himself; they were both in a state of reduction on this occasion.

Inspected six hours after death:—

Dura mater strongly adhering to scull, general whiteness of arachnoid, which was thickened, and closely attached to dura mater on both sides of the falx; under the arachnoid, and penetrating between the convolutions, was a quantity of serum; it also abounded in the base of the cranium, and was in slight excess in the lateral ventricles: there were a few gelatinous bodies in each choroid plexus; the substance of the brain throughout healthy.

Thoracic and abdominal viscera healthy; there was observed a large portion of ileum loose in the abdomen with its mesentery

much elongated, thickened, and vascular at some spots: this doubtless furnished the contents of the herniæ.

Case 2. Bombardier H. Carpenter, Veteran Co. Æt. 67; 24 years in India. Infirm, scarcely ever left his quarters, and of steady habits.

Reported to have lost his appetite, and to have been thirsty and feverish for two days. Was seized with a convulsive fit at 2 P. M. sent immediately to hospital. A vein was opened by Apothecary, a little hartshorn administered, also an enema with turpentine, head shaved and cold applied. I saw him about 4 P. M. he was evidently sinking, coma, stertor, lips pale, pulse failing, extremities mottled with purple; on lifting his head on a higher pillow, he sobbed once or twice and died.

Inspected three hours after death :—

On opening the head, a stream of black fluid blood commenced to flow from the wounded longitudinal sinus; although a large pool was formed on the floor, yet the sinuses and veins were found gorged, pouring out the blood when punctured; the arachnoid was semi-opake, and much distended by serum, substance of cerebrum and cerebellum of natural color and firmness, and no unusual quantity of fluid in the cavities of the brain.

Case 3. Serjeant Major N. Wells, Æt. 50; 31 years in India. Very active and robust, in the habit of drinking large quantities of spirits, which however seldom rendered him unfit for his numerous duties.

May 30. Has lately been more intemperate than usual: some days ago had a fall, and he has supposed his health breaking for some months. Last night when half asleep, suddenly felt a severe pain of occiput, and was instantly aware that he had lost the use of his right arm; he would not report sick, but was advised to shave the back of his head, apply leeches, and take laxatives.

June 2. Palsy not better; in addition, has the tremors, dreams, and fancies characteristic of delirium tremens. Admitted into hospital, had head shaved, cold applied, caustic blisters behind ears, tepid affusion, calomel purges, opiate enemata, cupping interscapulas, and weak brandy and water. Bowels acting very freely.

June 3. Having no sleep; tremors, vomiting. Same treatment, with small doses of ammonia and laudanum to allay vomiting; up to noon of this day, though generally raving, he could, by being loudly spoken to, be brought to understand what was going on, and to answer rationally.

June 4. No improvement, face distorted, frothing at mouth, frequent convulsive shivering. Pulse intermitting, surface livid. Died about 8 A. M.

Inspected five hours after death:—

Much fluid dark blood escaped during preparatory dissection; line of longitudinal sinus strongly adhering, glands of pacchioni *very* deeply indented in scull, veins gorged, and sinuses full; on

turning back the dura mater, the arachnoid was found white, nearly opake, and so very much distended by serum as to appear like a well filled blister. In the prevailing disease, excess of serous effusion is always present, but here it was in *immense* quantity ; much serum in base of scull, and on looking down the foramen magnum to divide the medulla spinalis, the canal seemed *brim full ;* the pia mater was generally more vascular than usual, especially about the tuber annulare ; there was a small deposit of gelatinous granules at root of right eighth pair of nerves; the substance of brain throughout without a trace of disease ; a slight excess of serum in ventricles and between the layers of septum lucidum.

Liver hard, reddish-orange ; gall-bladder much distended; (the body being covered with fat, and the thermometer at 110°, preparations for speedy burial prevented farther inspection.)

Case 4. Bombardier T. Jackson, Veteran Co. Æt. 45 ; 22 years in India. Lame, quiet, and industrious.

June 2. Admitted with remittent fever, considerable oppression of præcordia, was the only prominent symptom; he has a large spleen, and was cut for the liver, (as he terms it,) many years ago. Bled with great relief to 18 oz. ; had head shaved, cold sponging, and salts and antimonials.

June 4. Has been improving, but as he did not sleep last night, and looked confused, a few leeches were ordered to temples as a precautionary measure.

About $5\frac{1}{2}$ p. m. suddenly became insensible, evidently from prevailing apoplexy ; immediately

gave him some hartshorn, applied caustic blister to the whole length of spine, and behind ears, and injected an enema; these and similar measures were continued till his death at 9 A. M. June 5.

Inspected $8\frac{1}{2}$ hours after death:—

Considerable effusion of bloody serum in base of cranium, and great injection of the velum interpositum over the corpora quadrigemina, of the pia mater, of the crura cerebelli, and medulla oblongata: encephalon otherwise without a trace of disease; thoracic viscera healthy.

A radiated ligamentous spot on the surface of the right lobe of the liver, corresponding to the cicatrix over the false ribs, where he had been cut; the viscus otherwise healthy; a large smooth concretion loose in gall-bladder; spleen very large, of natural color and structure. No other deviation from healthy structure observed.

CASE 5. Serjeant Eagle, Æt. 55; 23 years in India. Not usually intemperate, but was seen (June 5) to-day at 9 A. M. tipsy; hot and stupid. He was advised to go to hospital, but it is believed that he took another dram instead. He fell in a fit at 2 P. M., was immediately sent to hospital, but died a few minutes after admission.

Inspected four hours after death:—

Although the head was on the usual pillow, a quantity of blood flowed while opening head; substance of brain healthy. Moderate effusion in the base of cranium; arachnoid of cerebellum semi-opake; considerable vascularity of the mesentery of the

choroid plexus, extending over the corpora quadrigemina to the origin of the medulla oblongata.

Left lung adhering to ribs and diaphragm, a portion of its lower margin hepatized; liver with many adhesions, otherwise natural. Other viscera free from congestion or apparent disease.

Case 6. Gunner E. McGillicuddy, Æt. 36; 17 years in India. Habitually intemperate.

June 15. Two days in hospital with fever after five day's drinking; the most troublesome symptoms were vomiting and pain of epigastrium, which were relieved by cupping. Yesterday evening he had no particular complaint, but obstinate hiccup. He is reported to have been restless during night, shifting his bed and not sleeping; about gunfire he sat up, muttering, throwing about his arms, hands clenched, feet strongly extended, with flexid toes. Pulse very full and strong; arteries visibly bounding, veins distended, pupils contracted.

Bled to 16 ounces, after which, though the circulation was but little affected, I feared to take more on account of the sudden sinking in some cases; but the tumultuous circulation was not to be controlled. No bandages could restrain the blood, and it was only after about 12 ounces more had flowed, that the bleeding was stopped by the finger of an attendant kept on the orifice; his head was shaved, and a constant stream of cold water poured on the naked scalp. Some ammo-

nia was given; also an enema; the convulsions continued; breathing became stertorous; each expiration distending cheeks; lips dry; pulse tremulous. No effect from enema; coma speedily followed, and he died at 8 A. M.

Inspected about nine hours after death :—

Vessels of head gorged; scull thick, but spongy, and easily sawn; a spot of bloody extravasation on the left posterior point of brain at the upper part; serum under arachnoid, milkiness of that membrane, especially at tuber annulare and cerebellum; a cretaceous tubercle larger than a pea embedded in left corpus striatum; a little red serum in ventricles; and a red jelly-like effusion abundant, where the choroid plexuses meet by their velum around the pineal gland. The posterior surface of medulla oblongator covered with a red net-work.

Right lung adhering, both of healthy structure; heart large, pale, flabby; sinus venosus large, white, thickened; parietes of right ventricle very thin, with a large patch of false membrane on its surface. Hypertrophy of left side of heart, walls of ventricle very thick and stringy; valves natural, aorta dilated at its origin and arch.

Stomach distended with flatus, of natural colour and structure. Liver large, extending across the body, but in structure apparently healthy. Spleen large, adhering to neighbouring parts, with two cartilaginous spots on its surface.

CASE 7. Corporal J. Limmond, Veteran Company, Æt. 64; 36 years in India. Robust, active, occasionally intemperate; much in the sun.

June 18. Commenced a drinking bout this morning, but fell down in a convulsion about

2 P. M.: was promptly sent to Hospital, and died about 15 minutes after admission.

Inspected four hours after death:—

Vessels of scalp, scull, and membranes of brain gorged; scull adhering strongly in line of longitudinal sinus, a slight effusion under arachnoid of crown; cranio-spinal fluid abundant; the arachnoid of the base of the brain opake, and the pia mater particularly red; the arteries being beautifully injected, especially around the infundibulum, and corpora albicantia. A bloody spot on anterior point of left hemisphere, and a little red serum in ventricles.

Lungs closely adhering from former disease to every part of costal pleura, but of healthy structure.

Liver large, healthy, (it had an additional lobe to the left of the small lobe, which was closely attached to the spleen.) Spleen adhering to diaphragm and colon; its investing membrane thick and rough, with round protruding cartilaginous spots; the substance of this organ broke down with scarcely an effort of the fingers. Left kidney large, dark, congested, forming a connected mass of disease with the spleen; right kidney also vascular, but in a less degree.

CASE 8. Gunner C. Conway, Æt. 24; six years in India, a drunkard.

Juue 19. Was discharged from Hospital this morning, quite recovered from a slight attack of pneumonia. He is reported to have walked direct from Hospital to the grog-shop beyond cantonments, (about one and a half mile,) and to have returned to barracks about noon, (thermometer

109°). Remained noisy, and drinking all day, and was found insensible on his cot, at 8 P. M.; forthwith sent to Hospital, but he never rallied, and died in less than half an hour.

Inspected nine hours after death ;—

Much bloody fluid had escaped from mouth and nose, during the night ; vessels of head all gorged ; much serum under arachnoid. At several places the fluid was of a pink tinge ; cranio-spinal serum abundant, red, substance of brain not unusually vascular ; about one ounce of serum in ventricles of a pink tinge, (I can compare it to nothing, but brightly tinted weak claret and water,) mesentery of plexus choroides much injected ; base of brain paler than usual in similar cases.

Right lung adhering, healthy ; left excessively gorged with blood, (his attack of pneumonia was of *left side.*) A scratch on upper part of this organ on opening chest caused a flow of several ounces of fluid frothy blood into pleura. (It appeared on inquiry, that he complained of his side while rioting during the afternoon. Were the symptoms preceding his death better known, his fatal illness might perhaps be more properly called "pulmonary," than cerebral apoplexy.)

Liver of a drunkard, mottled, and large, but it had not reached internal disorganization. Spleen large, and gorged. Gall-bladder distended with grass-green bile. Stomach and intestines remarkable for their healthy appearance.

CASE 9. Corporal Cought, Æt. 48 ; 17 years in India. A sickly man, of quiet habits, and remarkably abstemious.

June 20. Is reported to have been very drowsy all yesterday, but to have sat with a comrade for

some hours after sunset; to have taken a dose of salts, and gone to bed about 9 P. M. He was heard vomiting about 1 A. M. and found insensible, and promptly sent to Hospital. Pulse being full, he was bled to lb. i.; had head shaved, cold applied, and three enemata, (which operated fully,) and a little hartshorn at intervals. At 6 A. M. he was not better; was comatose with stertor; pupils contracted; as pulse continued strong and the temporal arteries appeared full, six ounces of blood were drawn from the latter, and back and limbs well rubbed with hot dry salt; he continued to get worse, becoming livid about seven, and dying at 8 A. M.

Inspected 9½ hours after death:—

Sallow, emaciated; vessels of head full of blood, which flowed freely during preparatory dissection; serum generally under arachnoid, and abundant in base of scull; substance of brain not unusually vascular; fluid of ventricles abundant, rather than excessive; plexus choroides and their mesentery much injected; lungs adhering, but of healthy structure. Heart and pericardium natural, with a small excess of serum. On laying open the sinus venosus, blood flowed freely from both venæ cavæ. Liver rather large, of natural structure; had a few patches of false membrane, no adhesions of any extent; gall-bladder not distended, rather thickened, no gall stones; there were five glands in the capsule of Glisson as large as beans, grey, soft, and one of the same color and consistence at the neck of the gall-bladder of square form, flattened, larger than a raisin of the largest size*. (This man was always sallow, and had ague with icteroid symptoms during cold season).

* See Twining on Diseases of Bengal.

Spleen with numerous adhesions, of natural dimension and structure. Stomach and intestines healthy, without fat, and a small quantity of serum was formed in the peritoneal cavity, as if ascites had commenced.

Bladder contained bright yellow urine.

Case 10. Serjeant P. Cahill, Æt. 45, 16 years in India. Steady man, healthy and active.

June 24. Admitted at 7 P. M.; he reports that he has been uneasy for four days, without having any pain; is restless; has no head-ache; costive. Ordered immediately a brisk cathartic of calomel and colocynth.

June 25. (Called at 3 A. M.) Found that he had two stools, and at the admission of another patient about midnight, he had been seen by the Apothecary, when he said that he was much better. The convulsive coma was observed about $2\frac{1}{2}$. He was cautiously bled; had head shaved, and an enema administered: he is now comatose, muttering, breathing with a moan; pulse soft; skin warm, abdomen somewhat tumid. "La douche" was commenced over naked scalp, another enema given, and attempts made to mercurialize him by friction; the ointment to be particularly rubbed on spine, abdomen, and thighs.

$6\frac{1}{2}$ A. M. Bowels acting, stools yellow, urine natural, (drawn off by catheter;) gums appear tumid, skin cool; can swallow a little. Ordered

perseverance in friction, a little thin sago and wine, heat to feet, and to repeat enema. He however died about 10 A. M.

Inspected four hours after death :—

Scalp, dura mater, and sinuses less full than usual; arachnoid quite opake, and moderately raised by serum on upper part of both hemispheres; also white and thickened over the infundibulum, and in the sulcus at base of cerebellum; cranio-spinal fluid, abundant, reddish: the ventricles contained red serum in slight excess; a mass of gelatinous granules in left choroid plexus; a net-work of veins on surface of right corpus striatum, with a small, red recent coagulum in its substance; bleeding points of brain not unusually abundant; velum interpositum very much injected, with a small recent clot at the root of the pineal gland.

Thoracic viscera healthy; right side of heart full of fluid blood. No disease of any abdominal viscus; the intestines contained a quantity of yellow stringy stuff, like the pulp of mangoes (of which fruit he is said to have been eating to excess). Large veins of abdomen full of blood.

Case 11. Private T. Williams, Æt. 42; 18 years in India. Has been in Hospital for 32 days, with slight hepatic and dysenteric complaints; all that time he has been on low and milk diet, and has daily taken laxatives for many days: he is a quiet man, and there is no suspicion of his having been guilty of any irregularity, or indeed of his leaving his cot.

June 25. While I was in the Hospital at 1 P. M. he complained to me that he felt fulness of his belly, and inclined to pass fæces, but was

unable to evacuate anything: little expecting the prevailing disease to attack a person in his circumstances, I ordered an enema only.

(Called at 4 P. M.) He had suddenly become convulsed as in epilepsy (to which he is not subject); universal twitching of muscles; mouth forcibly closed, with lower lip between teeth; coma, involuntary stools. Pulse soft, weak; surface naturally warm, soft. Shaved head, applied cold, and a caustic blister to whole length of spine, behind ears and along the crown, and heat to feet; he opened his eyes after applying the caustic (pupils closely contracted), and was made to swallow a little ammonia. As the pulse seemed failing, he was ordered a little warm wine and water.

7 P. M. Vomited wine and water, circulation confused, weak, heat of chest, frothing at mouth, spasms, weaker, livid extremities; he died about $7\frac{1}{2}$ P. M.

Inspected 11 hours after death:—

Scull very thick and soft, little conjestion of head, slight milkiness of arachnoid with pale serum effused under it, and penetrating between a few convolutions so as distinctly to separate them; brain not unusually vascular; cranio-spinal fluid abundant, not excessive, pale, a small excess of limpid fluid in ventricles; plexuses and velum not injected, (in this differing from every other case.) Lungs healthy, left adhering to diaphragm and costal pleura, the heart adhering by its whole surface so strongly to pericardium as to require the scalpel to separate it; soft, left ventricle unusually thin, valvular apparatus healthy.

Liver large, orange-brown, gritty under knife, left lobe adhering firmly, a few white patches on surface of spleen. A few stellated spots of vascularity of caput coli, and no other deviations from healthy structure, were observed.

CASE 12. Private J. Buckland, Æt. 39; 20 years in India; stout, habitually intemperate.

June 25. Admitted about 2½ P. M. heat and general uneasiness, heart throbbing and pulse full, after some days drinking; he was immediately bled, had a brisk cathartic, and cold to head: he was so much relieved, that I actually stated to the Garrison Surgeon, Mr. Clarke, that I believed myself successful in arresting in him the approach of the prevailing disease (in another case at the same time similarly affected, the same treatment seemed to avert the fatal symptoms); however, about 6 P. M. he became restless, attempted to rise, the orifice in his arm bled spontaneously, and in less than ten minutes he was dead.

Inspected 12 hours after death:—

A quantity of bloody fluid had escaped from mouth during night, much blood flowed while opening the head; the whole encephalon was vascular, much serum under a distended white arachnoid, points of blood numerous on cutting brain; much bright-red serum in ventricles, plexus choroides much conjested, base of brain steeped in red serum, arachnoid of base white and thick, especially between lobes of cerebellum.

Thoracic viscera healthy. Liver large, pale, nearly bloodless, gritty under knife, gall-bladder large, thickened,

full of thin saffron-colored bile, spleen large, adhering, slight vascularity of lesser arch of stomach, and no other morbid appearances, except a trifling excess of peritoneal serum.

Of the cases to which I shall but slightly allude, the two first were men found dead in the fields, having, no doubt, been drinking, and died from the excessive heat; the day on which one was found, was about the hottest of the season, a self registering thermometer in the shade indicating the maximum heat at 116°.

The third was a young man in hospital with delirium tremens, who after much restlessness during early part of the night, and great apprehension from imaginary dangers, suddenly became convulsed, and died in about an hour; his body was not inspected at the urgent request of his family, and as there were two others for dissection the same morning.

The fourth occurred in a steady elderly man, recovering from remittent fever; after having been nine days in Hospital, he became confused in intellect, did not complain of pain, slept none, had tremulous tongue, and latterly hiccup and subsultus; he died after several convulsions. There was much serum under the arachnoid, and in the base of the brain, and general vascularity of the contents of the cranium; as there was also considerable gastro-enteritis and cœliac congestion; this case perhaps ought not to appear as apoplexy.

The fifth case was also a complication of delirium tremens, fracture of neck of thigh bone, and abdominal congestion: the delirium suddenly became violent; as the patient was robust, the face flushed and circulation tumultuous, he was bled to 16 oz. and had antimonials and cold to head. I have been accustomed to use moderate depletion in many cases of delirium tremens with the best effects, but in this case a fatal termination seemed accelerated, for convulsions supervened, and he died in a few hours apoplectic. The membranes of the brain were highly vascular, and the ventricles distended by serum.

I do not mean to indulge in speculating on many interesting points suggested by the pathology of some of the above cases; such as the probable influence of the organic disease, or temporary congestion of the thoracic or abdominal viscera predisposing to cerebral affection; or the likelihood of chronic arachnitis being present in many of the cases, for the thickening and whiteness of the arachnoid membrane must be supposed the effect of disease of much longer standing than that which caused death; also some of the cases militating strongly against Dr. Clutterbuck's doctrine of absolute incompressibility of the cerebral mass, for the arteries were minutely injected, the veins at least as full as in health, and yet no small quantity of serum was added to the cranial contents.

I may add, that during the time of these cases occuring, there was a tendency to affections of the head in many other individuals, and I am willing to believe, that as attention was minutely paid to all such cases, many were saved from the convulsive attack from which none recovered; in such cases local and general bleeding, cold to head, friction* of the surface, blisters of caustic or cantharides, and the quiet and temperance insured by Hospital discipline were the means which (I suppose) averted more serious evils: in some cases head-aches were obstinate; in one, partial deafness still remains; in some, the pupils continued long closely contracted; in one, they are still constantly dilated, whatever the degree of light; in others again, as soon as the threatening symptoms had passed away, perfect health was speedily re-established; in short, the lesson taught to me has been "*venienti occurrite morbo*,"—once seized, I have never saved a patient; I shall however be happy if my want of success, and the consequent opportunity of dissection, shall lead others to suggest a better mode of combating this disease.

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* I deem thi sremedy of much importance, from repelling of "prickly heat" frequently preceding the fatal attack, and from the abundant evidence of congestion of the central organs prior to the accession of conclusion, or coma; dry hot salt well rubbed in, speedily restores heat and redness of the surface.

Tabular View of the Temperature at Chunar for the months of May and June, 1833.

May.	Therm. in open air at daybreak.	Therm. in house at 2½ P. M.	Therm. in shade at 2½ P. M.	Ther. dep. from wetting bulb.	Remarks.
1	..	92.5	..	..	Thin clouds ; sultry.
2	87.5	90.	100.5	.	W. wind ; clear.
3	83.5	90.5	.	..	Ditto ; ditto.
4	83.5	91.	..	..	Ditto ; ditto.
5	..	95.5	..	..	Hail storm at 9¾ P. M. ; after which, 88 ; rain at night.
6	73.5	90.5	..	..	S. E. wind, clouds and clear.
7	75.7	90.5	..	..	Ditto ; clear ; clouds.
8	77.	91.	..	..	Ditto ; ditto.
9	80.	87.	..	..	Ditto ; ditto ; ditto.
10	81.	87.	..	..	Ditto ; ditto.
11	83.5	88.5	..	..	N. E. ditto ; ditto.
12	83.7	90.	..	..	Ditto ; ditto.
13	85.5	89.5	..	..	N. W. and var. ; ditto.
14	87.5	91.5	..	..	Ditto ; ditto ; thunder, evening.
15	81.5	89.	..	..	E. ditto.
16	83.7	89.5	..	..	Ditto; ditto;dry squall evening.
17	81.7	91.	..	..	Ditto ; ditto ; shower, evening.
18	79.5	87.	..	..	Ditto ; ditto.
19	82.7	88.	..	..	Ditto ; cloudy ; shower.
20	86.7	88.	..	..	Ditto ; clear.
21	63.	88.	..	..	Ditto ; breeze; distant shower.
22	82.	87.	..	..	Ditto ; and var. ; clouds.
23	85.	87.	..	..	W. hot wind ; clear.
24	87.	88.	104.	..	Ditto ; ditto ; ditto.
25	86.5	87.5	106.	20	Ditto ; ditto ; ditto.
26	87.2	89.	109.	25½	Ditto ; ditto ; ditto.
27	88.	89.5	..	..	Ditto ; ditto ; ditto.
28	97.	89.5	..	..	Ditto ; ditto ; blowing all night.
29	95.7	89.	109.5	26½	Ditto ; ditto ; ditto.
30	89.	89.	116.	..	Ditto ; ditto ; ditto.
31	91.	89.	107.	26¼	Ditto ; ditto ; ditto.
June					
1	89.	8.77	109.5	27½	W. hot wind all night.
2	90.	88.5	109.	29	Ditto ditto.
3	90.	88.	108.	25	Ditto ditto.
4	88.	89.	..	..	Ditto ditto.
5	91.	88.5	106.	23	Ditto ; few drops ; cloudy, evg.
6	88.5	87.5	106.	..	Ditto.
7	87.5	89.	..	..	Ditto.
8	87.5	89.2	103.	..	Ditto ; few drops eveng.
9	88.5	89.5	105.	21	Ditto ; ditto.
10	86.	89.	107.	22	Ditto.
11	85.	88.	108.5	23	Ditto ; clouds.
12	86.	87.5	..	..	Ditto ; ditto.
13	86.5	88.	..	..	Ditto.
14	91.5	88.5	108.	27	Ditto.
15	91.7	88.2	105.5	20	Ditto.
16	89.	91.5	106.5	22½	Ditto and var.
17	89.	90.2	109.5	25½	Ditto ditto; few drops evening.
18	90.5	89.5	109.	23	Ditto.
19	93.5	89.5	108.5	21½	Ditto all night.
20	95.7	89.5	..	..	Ditto ditto.
21	92.	90.5	101.	18	Ditto clouds ditto.
22	88.	91.	110.	22	Ditto.
23	91.	89.7	108.	22	Ditto all night.
24	93.5	92.2	106.	17	Ditto ditto.
25	94.2	95.	103.	..	Ditto and var. ; clouds ditto.
26	90.	92.	103.	19½	S. W. ; var. ; dry squall.
27	87.5	91.	93.	8	E. and N. E. ; thunder shower.
28	87.	89.	87.	1½	E. and var. ; ditto ; ditto.
29	83.5	91.5	97.5	9½	Ditto and W. clouds.
30	89.	93.	98.	13	W. breeze, clouds, and clear.

Chunar, July 3, 1833.

ON

THE PATHOLOGY OF DYSENTERY.

By J. MURRAY, Esq.

Presented March 1, 1834.

I have been induced to lay the following cases and observations before you, from the impression that the pathology of dysentery indicated by them, differs in a very important degree, from that of any of the theories hitherto published; and that, if future experience should confirm the opinions here advanced, a more safe and certain guide will be obtained in the treatment of this dangerous disease.

It is with great diffidence that I venture to bring forward a new opinion on the pathology of this disease, which from time immemorial, has been under the observation of far more able practitioners than I can even ever hope to be. It is only from the impression, that I have enjoyed superior advantages, in observing the morbid appearances in earlier stages of this disease, than could have fallen to the lot of many, that I have been induced to propose a theory, in its nature so different from that of former writers on this disease.

The advantage of seeing the morbid appearances of any disease, at a period when they are insufficient to produce fatal results, can only arise from sudden death, caused by accident or the supervention of some other rapidly mortal malady, such as, cholera, apoplexy, bursting of an aneurism, &c.; and if the rarity of such cases and their necessarily insulated nature be considered, the cause of this peculiarity in the nature of this disease, not having been previously observed, may be accounted for.

The following cases occurred in a detachment of artillery drafts proceeding by water from Dum-Dum to the Upper Provinces. The detachment suffered severely from dysentery during the passage to Cawnpore. During this period, cholera broke out, and the dysenteric patients appeared strongly predisposed to its attacks. J Forsyth, Esq. Surgeon, 45th N. I. was in medical charge, and I was doing duty with the detachment. To Mr. F. I am indebted for several of the following cases, at whose post mortem examinations I was present, and from him I received many useful hints in writing the following paper, the greater part of which was written immediately after the first case occurred.

As the following observations are drawn from this disease, as it appeared in a detachment under peculiar circumstances, it may be said, that it suffered from a peculiar form of dysentery, and not

from the disease as it generally appears; and as I have been but a short period in this country, and had but a limited opportunity of observing the disease, I will give a slight outline of the symptoms of dysentery as they appeared in the detachment. They are drawn from 31 cases of men under my own charge, and they corresponded with those of about an equal number under Mr. F.'s charge; as, also, with those of several cases I saw in Calcutta: and the description of the symptoms is analogous to that of the best writers on the dysentery of this country.

The symptoms commenced with a frequent desire to go to stool; the evacuations were first fæculent, then liquid fæculent and slimy; then liquid fæculent, and slimy with admixture of blood; then bloody mucus, or pure blood; then ragged thickened pieces of mucus membrane or macerated coagula of blood in a bloody fætid liquid. When the disease took a favourable turn, the evacuations became less frequent and more copious, the quantity of blood diminished; then liquid fæculent, mixed with white tenacious mucus or membrane streaked with blood; then liquid fæculent containing masses of reddish transparent mucus, then fæculent.

The next symptom in order of constancy, was pain on pressure over some part of the colon: generally in the situation of the cœcum or sigmoid flexure. This generally appeared about the 2nd or

3rd day, and disappeared some days before the evacuations were natural. In advanced severe cases, swelling and hardness were perceptible in these situations.

Tormina and tenesmus, either singly or combined, formed a prominent symptom in most cases. They frequently did not appear before the 3rd day, and generally disappeared for some time before the evacuations became natural. The pulse was generally unaffected for the first three or four days after that period; in severe cases, it rose gradually till a favourable change took place, when it again as gradually sunk to, or frequently below the natural standard. The skin was generally unaffected for the first three or four days, and sometimes throughout the disease; in other cases it became hot and dry, after that period. It generally became natural for some time before the evacuations. No constant indication of the disease could be drawn from the state of the tongue. In very advanced stages, when copious evacuations of blood had taken place, suppression of urine with irritation of the bladder frequently appeared. Irritability of the stomach was frequently found, particularly when the patients used fluids copiously. The appetite remained unimpaired for one or two days, then disappeared till the disease was nearly cured, when it returned, and could with difficulty be regulated. Great thirst formed a prominent symptom during the disease.

These symptoms bore no fixed or regular proportion to each other, and frequently some of them were entirely absent. Along with these, there were in four complicated cases, symptoms of hepatic derangement in two, of intermittent fever in one, and of rheumatism in the other.

As the elucidation of the pathology of dysentery is the object of this paper, I have condensed the symptoms and treatment of the following cases, as far as is consistent with perspicuity, and am unfortunately unacquainted with the history of two of the following cases, viz. Hickrey's, No. 2, and Busy's, No. 3, previously to the attack of cholera; but their post mortem appearances bear so close an analogy to those of the earlier stages of dysentery as indicated by the other cases, that I think I am justified in placing them under that head, more especially as the morbid appearances are not similar to those caused by the disease which ultimately proved fatal.

The first case that directed my attention to this peculiarity in the origin of dysentery was that of Jones, No. 1. In this the course of the disease appeared so evident, that, with the utmost anxiety, each succeeding case was minutely examined for confirmation; but till Moore's case, No. 4, occurred, all doubt of the accuracy of this opinion was not effaced.

Case 1.—Corporal William Jones, an Englishman, Æt. 22; 5 ft. 9 in. in height, of a dark

complexion, regular habits, and healthy constitution. Has been eight months and nine days in this country, and in hospital once, with a sprained ankle. Was admitted at 7 P. M. on the 19th August, 1833, complaining of a frequent desire to go to stool. Evacuations fæculent and slimy, unattended by tormina or tenesmus, no pain in abdomen on pressure: these symptoms commenced this morning. Pulse 100, full; tongue clean; skin cool.

V. S. to syncope.

R. Ol. Ricini ʒi.
Opii gtt. x.
Aq. Menth. pip. q. s. ft. haust stat. sumendus.

R. Pulv. Ipecac. gr. xij.
Ext. Colocynth.
Ext. Gentian. āā gr. x.
ft mass. in pil. vi. divid. ii. 4tâ quâque horâ.

During the night, cholera supervened. The treatment was first, calomel and opium; then ammonia, and last, saline transfusion. This last remedy produced reaction seven hours after the pulse had become imperceptible at the wrist and temples. Leeches and blisters were then applied, with apparently temporary benefit, but he died at 3 P. M.

Sectio cadaveris, three hours after death:—

Subject not emaciated; surface pale. *Head*—great venous and arterial congestion on the surface of the brain, with more bloody points than natural in its substance. The lateral ventricles contained about one drachm of serum, and the choroid plexus

was gorged with blood. Similar vascularity was seen on the base of the brain, with considerable serous effusion extending down the spinal canal. *Thoraæ*—The pericardium contained about half an ounce of serum. The right auricle and anterior edge of right ventricle of the heart were covered externally with small ecchymosed spots, about the size of grains of sand. This side of the head was distended by a large coagulum of dark blood, some parts of which were deprived of the colouring matter. The left auricle and ventricle were natural, contracted, and empty. The lungs were natural, with some venous congestion posteriorly.

Abdomen—General florid congestion over the whole peritoneal surface of the viscera. The stomach contained a little whitish fluid, mixed with calomel, &c. There were several vascular spots on the mucous surface. The duodenum was vascular, and contained a similar fluid. The other intestines were distended with a white congee-water-like fluid, while the mucous surface was pale, and felt doughy. The colon was distended with a similar fluid; on the mucous surface round, the ilio-colic valve, and over the cœcum and ascending colon, there were numerous red patches, from half an inch, to an inch in diameter. These parts were vascular, with thickening of the coats. In the centre of some of those in the ascending colon, there were small transparent vesicles, about half a line in diameter; the transverse arch and descending colon were studded with small vesicles and pustules from a line, to a line and a half in diameter, some transparent, others opaque, each with a depressed dark spot in the centre, and without surrounding redness or thickening of the coats. When the mucous membrane was torn off, these vesicles remained adhering to the muscular coat. Along with these, in the sigmoid flexure, there were opaque pustules, surrounded by vascularity and thickening of the neighbouring coats; and in the interior portion of the sigmoid flexure, the vascular and thickened mucous membrane was detached from the white opaque centre. There were

also numerous small circular ulcers, from one and a half to two lines in diameter, with sharp edges, containing a small circular slough in the centre, surrounded by vascularity and thickening of the coats. In the rectum there were a few vesicles. In the intermediate parts of the mucous surface, except in the ascending colon, the coats were natural. The liver was natural, the gall-bladder distended with dark ropy bile, which did not escape into the duodenum, even when considerable pressure was made on the gall-bladder. The bladder was contracted, there was no marked vascularity of the semilunar ganglion or solar plexus. The vena cava was gorged with dark liquid blood. The blood of the body generally was dark and liquid, one of the glands in the mesocolon was enlarged and hardened, and contained a solid earthy deposit.

Case 2.—(From Mr. F.) Elias Busy, Gunner, aged 24; admitted 15th September, 1833. Was seized with vomiting and purging of pure cholera secretion about 11 A. M. and about one, universal and excrutiating spasms ensued. Eyes sunk, and the countenance and surface betraying every mark of genuine malignant cholera. Pulse not perceptible, and he lies in a lethargic state when not disturbed.

V. S. was attempted, and calomel and opium given. The saline solution was given internally, which caused a partial re-action, but he died at 7 P. M.

Sectio cadaveris, 13 hours after death. Subject not much attenuated; surface mottled, and at depending parts entirely lucid.

The morbid appearance in the head and thorax were analogous to those described in Jones, No. 1.

Abdomen—Omentum vascular; stomach enormously distended, and externally partaking with the small intestines of the usual pink-coloured blush: the arch of the colon, of a greenish hue. Liver mottled externally, substance sound; gall-bladder distended; spleen and kidneys sound. The distention of the stomach was caused by about two and a half pints of saline fluid. The lining membrane was vascular throughout, with here and there ecchymosed patches. The pylorus was firmly shut, and the duodenum was found to contain an inspissated white milky fluid; not a drop of the saline fluid had passed in, nor was there the slightest tinge of bile, though slight pressure on the gall-bladder made its contents enter freely. The colon contained a considerable quantity of a dirty fluid like thick congee. The cœcum was thickly studded with those vesicles already remarked, with several apparently in a more advanced stage; each vesicle had a dark depression in the centre, and on scooping them off along with the villous coat, they left the fibrous coat red and vascular. The superior part of the sigmoid flexure was contracted, the inner surface vascular, with an almost confluent crop of vesicles.

Case 3. Thomas Hickrey, Gunner. Admitted 12th September, 1833, at 11 A. M. Complaining of violent vomiting and purging of a clear congee-like fluid, with violent spasms of the extremities. These symptoms commenced by vomiting and purging at 6 A. M. The surface of the body is blue and shrivelled, countenance collapsed, eyes sunk, and surrounded by a dark areola; pulse 130, very weak and indistinct; extremities cold.

V. S. was attempted; he got calomel and liquor ammonia, and mercurial frictions were employed with no advantage. He died about 7 P. M.

Sectio cadaveris, 10 hours after death. Subject not emaciated, surface blue. A very strong fœtid odour was emitted by the body during examination. The morbid appearances of congestion in the head and thorax, were analogous to those already described.

Abdomen—Very little vascularity of the omentum or peritoneal surface of the small intestines. The colon appeared dark; the stomach was slightly vascular exteriorly, and on several parts of the inner surface there were vascular patches. It contained an oily grey fluid, consisting of the medicines last given. The small intestines contained a grey watery fluid, the colon contained a similar greyish fluid. The mucous surface of the cœcum, ascending colon, and transverse arch, was natural. On several parts of the sigmoid flexure there were small circular vascular ulcers, about a line and a half in diameter, with sharp edges, and with redness and thickening of the surrounding coats. Liver natural; gall-bladder distended with light green bile, which on pressure easily passed into the duodenum. Spleen and kidneys natural; bladder contracted.

Case 4. (From Mr. F.) Henry Moore, Gunner, Æt. 27; of a rather muscular build, but pale countenance. Has been six years in this country, once at the Sanitarium at Cherrapoonjee, on account of his health. Admitted on the 4th September, 1833, at 7 P. M. complaining of pain below the umbilicus, griping and frequent calls to stool, with violent tenesmus, of two days' standing. Skin hot

and dry ; pulse 90, full ; tongue red and moist. He had got cal. gr. x. opii gr. i. at 10 A. M. with an ounce of castor oil at 12 ; since then has only had two sanguineous stools.

V. S. ad lb. iss.
R. Pulv. Ipecac. gr. iv.
Ext. Gent. gr. v.
To be taken at 9 o'clock.

5th. Pain much abated ; griping and tenesmus in a less degree. Skin cool and moist ; 12 stools during the night, but as the boat was blown away in a storm, they are not preserved : his bedding is soaked with rain, from the leaking chopper. Tongue clean and moist. Pulse 92, rather full.

V. S. ad ʒ xx.
R. Ol. Ricini ʒ i.
Opii gtt. x. ft. haust. stat. sumendus.
At 4 P. M. Repeat the Pil. Ipecac. as yesterday.

Vespere. Has had 12 stools since taking the oil, latterly less frequent ; griping and straining still less ; no pain on pressure on any part of the abdomen ; stools dark-coloured, no blood ; tongue slightly white ; pulse 96, soft.

Repet. Pil. 3tiâ quâque horâ.

6th. Three stools during the night, reported of a brown colour, without blood, passed without tormina or tenesmus. Belly elastic and natural everywhere, except in the region of the sigmoid

flexure, where heavy pressure causes slight pain. Slept well towards morning. Pulse 92 ; tongue rather foul towards the back.

R. Pulv. Ipecac. gr. ii.
Ext. Gentian. gr. iii. m.
Pil. st. sumend., et tertia quâque horà repetâ.

Vespere. Four stools, slimy, containing a little blood and bilious fæculence ; severe griping. He took four pills during the day, all of which he rejected. He has been sick at stomach all day. Some pain on pressure about the sigmoid flexure. Pulse 104 ; tongue clean and moist.

App. Empl. Lyttæ epigastrio.
App. Hirud. xv. region iliac sinist :
R. Ol. Ricini ℥ss.
Tt. Opii gtt. x. m. ft. haust. st. sumend.

About six o'clock was suddenly seized with purging of a watery congee-looking fluid ; stools ejected forcibly, and vomiting of a clear watery stuff. Some cramps in his legs. Pulse scarcely perceptible. Skin cold, and covered with clammy perspiration ; he complains much of thirst.

He got calomel and opium without effect. Saline fluid was injected by the right median basilic vein. It produced re-action. He had several distinct rigors and several fits of yawning. He died about 3 A. M.

Sectio cadaveris, 4 hours after death :—

Subject not much emaciated. *Head*—much congestion in the veins on the surface of the brain. The pia-mater, covering both hemispheres, was turgid and florid. The substance of the brain was dotted with more bloody points than natural. The lateral ventricles contained about a drachm of serum. *Abdomen*—there was a pink blush over the external surface of the intestines. The colon was contracted in several places. The gall-bladder was much distended, and the surrounding viscera tinged with bile. The stomach was inflamed, injected with blood, and much thickened, particularly at the smaller curvature. The calomel was spread over the inner surface, to which it adhered by viscid mucus. The whole colon was taken out, and found to contain only about two oz. of a greyish coloured fluid. There were no diseased appearances in the cœcum. The transverse arch was studded with small circular red spots, about a line in diameter, bearing very much the appearance of the skin recently after a slight attack of small-pox. There was scarcely any irregularity on the surface of the mucous membrane over many of these spots ; over some, there was a slight depression, but in most some thickening of the coats still remained. In the descending colon many of these red spots were formed by ulcers in different stages of cicatrization by slight vascularity and thickening of the coats. At the lower part of the sigmoid flexure, the ulcers for a space of three inches, though clean and healing, were so numerous as to be nearly confluent ; there was considerably more thickening of the surrounding coats at this part than in any other portion of the colon ; the rectum was natural.

Case 5. (From Mr. F.) Charles Moorehouse, Gunner, Æt. 23 ; of a dirty dark complexion, short stature, and rather stout frame. Has been six months in India. Admitted on the 11th August, 1833, with pain of the abdomen and some tension. Tormina and tenesmus severe ; going to stool every

10 minutes, and passing nothing but mucus, streaked with blood. Has been ill four days. Skin morbidly warm, dry, and rough. Pulse 100, hard. Tongue white in centre.

V. S. to syncope.
R. Calomel ϑ i.
Opii gr. ii. ft. mass. st. sumend.
R. Ol. Ricini ʒ i.
Aq. Menth. pip. q. s. ft. haust. merid. sumend.

Vespere. Bled to 20 oz. blood neither florid nor buffed. Pain still about the umbilicus on pressure; two scanty mucous and bloody stools, with much tormina and tenesmus; pulse 96, soft; tongue clean; much thirst. Perspires freely.

App. Hirud. xx. epigastrio.
R. Pulv. Ipecac. gr. v.
Ext. Gent. gr. vi.
Pil. st. sumend. et post horas tres repetand.
Pulv. Jalapæ c. ʒ. i. s. m.

12th. Has been at stool every ten minutes during the night; but since he took the powder, the stools have been more free, and passed with less tenesmus; stools of a yellow colour, mixed with mucus. Skin warm and dry. Pulse 90, ratherfull. Tongue white in centre and dry.

V. S. ad xvi. ʒ
Rept. pil. 4ta qq. horâ.

Vespere. Syncope ensued when about nine oz. had been taken. He has been as frequently at

stool as before. Hands and feet cold; abdomen morbidly hot. Much thirst. Pain in abdomen rather increased. Tormina and tenesmus very urgent. Pulse 100; tongue clean.

App. Cucurb. cruent. abdomen. ad ʒ xv.
R. Calomel ϑ i.
Ext. Hyosc. gr. v. ft. mass. h. s. sumend.
Ol. Ricini ʒ i. cras mane. s.

The patient would not submit to be cupped; he was discovered spitting out his medicine, when Mr. F.'s suspicion of his orders not having been followed, induced him to make the patient take it when he was present. The symptoms became progressively worse, and he died on the night of the 16th.

S. C. 14 hours after death.

Chest—about an ounce of serum in the pericardium. Heart natural; lungs slightly emphysematous, otherwise natural.

Abdomen—colon distended: of a brown colour and indurated, particularly in the cœcum and transverse arch. The cœcum adhered by recently effused lymph to the surrounding abdominal parietes. The glands in the mesocolon enlarged and vascular. In removing the colon, its coats were lacerated in several places, and a quantity of brown fœtid fluid escaped. On opening the colon its coats were found very much thickened. The cœcum and transverse arch were involved in one continuous mass of ragged ulceration, leaving scarcely any trace of the original mucous membrane. The surfaces of the ulcers were covered with white sloughs, in some places detached, leaving the muscular, and in a few places the serous coat exposed. In the descending colon and sigmoid flexure, the

ulcers were more distinct, of an irregularly circular form, with florid elevated edges, surrounding a white sphacelated portion of the thickened mucous membrane; on removing this slough, the muscular coat was distinctly seen. The ulcers varied from two inches to half an inch in diameter. In the sigmoid flexure, there were several, about a line and a half or two lines in diameter, with a dark depression in the centre, having very much the appearance of the small-pox pustule. There was no redness or thickening of the coats surrounding these small sloughs. In the rectum the ulceration was more extensive and uninterrupted. Over the whole colon, adhering to the ragged edges of the ulcers, there was a transparent red gelatinous substance, easily removed by the sponge, but not by simply pouring water on it. The small intestines were slightly vascular. They contained a light-yellow fluid. The duodenum was exceedingly vascular. On the great curvature of the stomach, there were several ecchymosed spots, from a half to a quarter of an inch in diameter. The liver was slightly enlarged and of a light color. The gall-bladder was natural, and contained healthy bile; spleen and kidneys natural.

Case 6.—(From Mr. F.) Benjamin Kegan, Gunner, Æt. 25; of a short stature, muddy complexion, and rather spare habit. Eight months in India, and had been in hospital at Dum-Dum for venereal. Admitted on the 16th August, 1833, with purging of a bloody mucus, of ten days' standing. At stool about 20 times in the day, with much griping and tenesmus; no fixed pain in the abdomen on pressure. Thirst. Tongue white. Pulse 100, sharp, and jirking.

V. S. ad. ℥ xxiv.

R. Calomel, gr. xv.

Ext. Hyoc. gr. v. ft. mass st. sumend.

R. Ol. Ricini ʒ i.
Ft. Opii gtt. xx.
Ft. haustus cras mane sumendus.

19th. Was much purged in the night, with severe tormina and tenesmus, stools not kept, was wetted by the rain last night. Since taking the oil, he has had four copious greenish coloured stools, without blood or mucus. Skin soft and cool; tongue clean. Pulse 86, soft; says he is weak.

R. Pulv. Ipecac. gr. iv.
Ext. Gent. gr. vij.
Pil. ft. h. s. sumend., et cras mane repet.

20th. Has had seven bilious feculent stools; no pain on pressure, no tormina nor tenesmus. Belly relaxed and natural, the abdominal aorta pulsates strongly. Skin natural. He perspires freely. Pulse 100, rather feeble. Tongue loaded, moist, and pale; says he is very weak.

Cont. Pil. Ipecac. quartâ qq. horâ.

Vespere. No stool since noon; no pain in the abdomen; no griping, but has been straining four or five times on the pan in vain.

Ol. Ricini ʒ i. c. Tt. Opii: gtt. xx.

21st. Vespere. Four stools in the night and one since 9 A. M. of a bright yellow colour, with some coagula of blood floating on the surface: has been griped occasionally, but had not tenesmus.

Slight pain on pressure below the umbilicus. Skin moist and warm; pulse 96. Tongue white in centre. Thirst. Gums red and tumid, but he says not painful. Still complains of weakness.

App. Hirud. xv.
Repet. Ol. et Pilul.

He was not seen again till the 23rd, owing to the Hospital boat having been wrecked, when, from exposure to the sun during the day and the damp air at night, he was found much worse; he continued sinking till the 31st, when he died.

Sectio Cadaveris, 9 hours after death.

Thorax—viscera sound.

Abdomen—On attempting to raise the omentum, it was found to be bound down by adhesions between the cœcum and parieties of the abdomen; on using slight force, it tore away a small portion of the cœcum, and allowed the fæces to escape: the ascending colon and transverse arch were vascular, particularly where they were joined, by a short, recently-formed adhesion, to the gall-bladder. The colon was intimately united for two inches in extent to the duodenum, and the latter at the point of contact, highly vascular. Mesocolon and glands vascular, the latter enlarged, the small intestines generally had a bright pink appearance. On removing the colon, it was ruptured in several places, in spite of all our care; on laying open the gut the mucous membrane lining the cœcum was found hanging in detached dead masses, and the subjacent coat bare and ulcerated to a frightful extent: the arch throughout contained ulcers, but in different stages; that portion of it which was united, by recent inflammatory action, to the duodenum, showed marked vascularity on its inner surface, and was covered with small vesicles such as are described in Dr. Murray's case, "Jones, No. 1." In

other parts there were the appearances of recent cicatrices. The lower part of the sigmoid flexure was in active and extensive ulceration, and the rectum near the anus was ulcerated in its whole internal surface. The stomach was somewhat vascular, and had some ecchymosed spots on the small curvature. The upper and fore part of the right lobe of the liver had a patch of the size of a crown piece, of a darker colour than the surface generally. On cutting into this part, about three-quarters of an inch from the surface, an abscess containing about an ounce and a half of pus, was opened. The parieties of the abscess appeared membranous and organized; the spleen and kidneys were natural.

In these cases the morbid appearances of dysentery may be traced from the first organic lesion, through all the different stages, to a return to the healthy structure. The disease appears to pass through a regular course, which may be separated into six distinct stages, viz.

1. Inflammation, or vascularity and thickening of the coats of numerous portions of the colon.

This is evident in the cœcum in Jones' case, No. 1.

2. Effusion, or the formation of numerous vesicles, with subsidence of the inflammatory action.

This stage is seen, previous to the subsidence of the inflammatory action, in the transverse arch in Jones' case, No. 1, and in Kegan's case, No. 6,

and in a complete state in the descending colon in Jones' case, No. 1, and in Busy's case, No. 2. Around the vesicles in these examples, there was neither vascularity nor thickening of the coats; hence it may be inferred that the inflammation subsided after the formation of the vesicles. The smallness of the vesicles and the diffuse nature of the inflammation in the ascending colon in Jones' case, No. 1, and in Kegan's case, No. 6, contrasted with the circumscribed inflammation in the descending colon in Jones' case, No. 1, and in Busy's case, No. 2, would indicate the inflammatory origin. It is probable that increased action continues during life, though it leaves no trace after death.

3. Gangrene, or inflammation of the coats surrounding the vesicles or pustules leading to their death, to an extent proportioned to the severity of the inflammation.

The proofs of this stage are very clear, and the examples diversified, from a line and a half in diameter, the size of a common pustule, to three or four inches, involving the whole calibre of the intestine. This latter extent is evidently produced by the confluence of several pustules. The shape of extensive sloughs in most instances would indicate this mode of formation. In the sigmoid flexure in Jones' case, No. 1, and in the cœcum in Busy's case, No. 2, this stage is seen in process of formation, and it is seen completed in the sig-

moid flexure of Jones' case, No. 1, and Moorehouse's case, No. 5; in the latter varying from a line and a half to two inches in diameter.

4. Ulcerative inflammation, or the absorption of the surrounding coats, with the separation of the sphacelated portion.

The examples of this stage are numerous, and the appearances must be familiar to every person accustomed to examine dysenteric subjects, as the disease in this stage is capable of producing death. In the sigmoid flexure in Jones' case, No. 1, this stage is seen in its mildest form, and in Moorehouse's case, No. 5, and Kegan's case, No. 6, in its intermediate, and, also, in its most severe form.

5. Granulation, or the formation of a new healthy vascular secreting surface.

There are examples of this stage in the case of Hickrey, No. 3, Moore, No. 4, Moorehouse, No. 5, and Kegan, No. 6. In the first two, there was no intermediate step between the separation of the slough, and the formation of healthy granulation; but in the other cases, the ulcers showed all the different characters evident in ulcers on the surface of the body, from the pale flabby indolent, to the inflamed irritative sloughing ulcer; they being like ulcers on the surface of the body, affected both by the state of the constitution and the nature of the local applications.

6. Cicatrization, or the contraction of the surface of the ulcer and the formation of a new epithema.

The appearance of the cicatrice must depend on the previous stages. This variety is well marked in these cases. In Moore's case, No. 4, where the ulcers had been small, scarcely any irregularity of the surface remained; but in Kegan's, No. 6, where the ulcers had been more extensive, the cicatrices were very evident. But, the cicatrices that appeared in any of these cases, as they followed comparatively small ulcers, do not show a very important change produced in the calibre of the colon by this stage when the ulcers are very extensive. Such contractions must be familiar to older residents in this country. I have had an opportunity of seeing only one case of this description, in a man named Rowley, who died on the passage to Cawnpore. He had suffered some years previously from dysentery, and died from a recent attack. The rectum in this case, for about three inches, was exceedingly contracted and thickened, and there were several other extensive cicatrices in the other parts of the colon. I may mention, that the appearances of the ulcers in this case were very different from those in the other case. I do not give this case in full, from its being solitary in my experience.

The progress of the ulcers in this disease bears a very close analogy to those of pustular diseases

on the surface of the body, where the surface is kept moist, and the formation of crusts prevented. In both diseases they appear simultaneously in great numbers; and several stages may in both be found at the commencement. The one is said to originate in the rete mucosum; the other commences in the vascular and nervous coat immediately under the epithema—probably in the glands of Brunner and Peyer. In both, when slight, the pustules are distinct, and no permanent marks or cicatrices are left; but when severe, the pustules are frequently confluent, and indelible cicatrices remain. In both, aggravation of the inflammation, with extension of the sphacelation, takes place, from the contact of irritating vitiated secretions, and in both, hæmorrhage from parts subjected to motion. The one is confined to the surface of the body, exposed to the action of the air, while the other is confined to the surface, not exposed to its action, and apparently only to a portion of that surface, viz. the colon. From these facts, in my opinion, the following inference may be legitimately drawn, viz. that dysentery is of the pustular order of exanthematous diseases.

Much of the dissimilarity in the symptoms and morbid appearances, as generally found, may be accounted for by the situation, and the functions of the organs affected. In dysentery, the bile, the fæculent remains of the food, the healthy and morbid secretions of the intestines, unavoidably come in contact with, and irritate, the ulcerated

surface, and excite violent spasmodic action, of the subjacent muscular coat, and frequently that of the abdominal parieties also; the effect of which is an aggravation of the inflammation, producing tormina, tenesmus, and bloody evacuations. In pustular diseases, a crust defends the ulcers from the contact of irritating substances; but if irritating applications or secretions be not avoided, and if much motion be allowed, extension of the inflammation and sphacelation, with hæmorrhage, ensues. But increased bloody discharge may take place from the intestine, attended by tormina and tenesmus, and ulceration be found after death, the origin of which was not in the pustular form here described. The colon, as being part of the system, must be subject to the general laws which govern that system. Ulceration takes place on the surface of the body from general causes, of which the most common are impeded circulation and debility; and experience proves that the colon is similarly affected by similar causes.

The history of the detachment in which these cases occurred, apparently throws some light on the important question; the contagious nature of this disease. As there was a deficiency of close stools in the hospital, the dysenteric and non-dysenteric patients could not be prevented frequenting the same pan. Those non-dysenteric patients lately arrived in the country, who had not previously suffered from dysentery, with scarcely one exception, were affected with that disease soon

after leaving hospital; while there was no instance of a patient who had resided long in this country, and had previously suffered from dysentery, being affected with that complaint either in hospital or soon after discharge. These facts would seem to indicate, that this disease, like pustular diseases generally, was contagious for once, and only for once.

These cases were generally mild, but characteristic of the disease; but the field for observation was too limited to allow such general conclusions being drawn.

Complications with this disease are frequently found, but they are generally those to which the patient was otherwise predisposed, either by climate, mode of living, previous disease, or present treatment. Hence in cold variable climates, it is generally simple, or the complication may be traced to previous organic disease; in hot dry climates, hepatic affections most frequently co-exist; in hot, damp, and in marshy countries, intermittent and remittent fevers form the most common complications. Hepatic complications will be found in all countries where the people are addicted to the abuse of ardent spirits, or they may arise during the disease, from the operation of one of those obscure laws that regulate the system, viz. the formation of abscesses in the liver in patients suffering from extensive collection of pus in other parts of the body. The colon in advanced severe

cases bears to the system a similar relation to an extensive abscess, hence the probability of the liver being similarly affected; complications from previous organic disease must, and from present treatment may, be found in all countries.

If the opinion here advanced, of the pustular nature of the origin of dysentery, be true, and if its nature be similar to that of pustular diseases on the surface of the body, another field is opened for medical science, to confer a new benefit on the human race, by alleviating or removing one of the most fatal diseases from which it now suffers. Dysentery generally appears when the constitution is least prepared to resist the attacks of disease, and the general result is but too well known. The same circumstances were true regarding small-pox, before the discovery of inoculation, or more recently of vaccination; and the comparatively small number of deaths from that disease, in the present day, constitutes one of the greatest victories medicine ever gained over disease.

Meerut, Jan. 1, 1834.

CASES OF FRACTURE

OF

THE LOWER EXTREMITY.

By W. W. RALEIGH, Esq.

Presented Jan. 19, 1834.

Since my last report of cases of fracture of the lower extremity*, I have continued to pursue the practice, and in instances in which mechanical contrivances were applicable, to use the apparatuses introduced by Mr. Amesbury, with a degree of satisfaction to myself, and comfort and advantage to my patients, unattainable by any other means with which I am acquainted.

The following cases were treated in the General Hospital:

Case 1.—*Fracture of the Femur.*

J. Hartley, Æt. 22 years, a tall, well-made man, had enjoyed health through childhood and up to the period of his embarkation for India, in June 1830, as a recruit for H. M.'s Dragoons. Three weeks after leaving England, he observed a swelling above the right knee, which was unat-

* See vol. v. Med. and Phys. Trans. p. 370.

tended by pain, and reduced by remedies applied About the middle of August, whilst descending the hatchway ladder, by a lurch of the ship he was suddenly wrenched round : having hold of an iron bolt, he saved himself from falling, nor did he get his legs entangled between the steps of the ladder; but on attempting to stand his limb "gave way under him," and he found that, his thigh bone was broken ; the limb (by the man's account) appears to have been put up in short splints.

On admission into the General Hospital on the 13th November, 1830; his state was as follows : Much emaciated, a hectic flush, frequent, small pulse, hot dry, skin, white tongue, and total disregard for food. The right thigh from the pelvis downwards, considerably swollen at the lower part, just above the knee, forming a circumscribed tumour, containing fluid ; not only crepitus, but a noise as if two portions of bone knocked together, could be produced ; sharp hard bodies (the broken ends of the femur) protruded the integuments anteriorly and posteriorly ; when the limb was left to itself, the knee and foot turned inwards, but could be placed in any position between semi ab- and adduction. The surface of the limb was pale, and its heat about natural, the foot and leg slightly ædematous ; the cuticle of the trunk and extremity, on the injured side, was here and there excoriated, from long confinement to an uneven and hard bed. He was placed on a soft mattress, the limb comfortably supported ;

and ordered a mild nourishing diet. By the 2nd of December, having recovered from the effects of disembarkation, &c. amputation of the limb was decided on, previous to which, a small puncture having been made into the distended portion, at the lower part of the thigh, xvi. ʒ of greenish brown fluid of very fœtid odour, and appearing like blood, which had undergone decomposition, escaped; the immediate seat of injury could now be more correctly examined, and a fracture of the femur above the condyles, and extending into the knee joint, appeared the probable nature of the accident.

I performed the operation very high up the thigh, at which situation the soft parts were considered to be in a natural condition; but on making my incisions through the muscles, dark fluid, similar to that which proceeded from the lower part of the thigh on its being punctured, issued; and after amputation, sinuses were detected, taking their course towards the pelvis, denuding the femur of its periostium. The walls of these sinuses were quite cartilaginous, and in some parts, bony.

An opiate procured the patient a good night. For many days, a very copious, fœtid, dark-coloured discharge flowed from the stump; but his general appearance improved, and his appetite became quite craving. Pulse less frequent, but seldom below 110, and at night he was occasionally observed to talk incoherently; his bowels were kept

regular, and he was allowed a nourishing diet, with a bottle of beer.

On the 15th December, the following report is made in my diary.

"Passed a good night; his general appearance more favourable than it has yet been. Pulse slower and softer, skin soft and moist. Tongue clean. One natural evacuation in the 24 hours; appetite very keen. The stump has a healthy aspect, excepting at the centre, where the bone being denuded of periostium, the soft parts are not disposed to adhere round it; the discharge from the surface of the stump and sinuses is yellow pus; the ligatures have all come away." He continued to improve up to the 28th, when his spirits began to flag, and the discharge from the stump became thinner, and of unhealthy color. Pulse 120; and during the night had passed frequent loose stools: the remedies had recourse to checked the diarrhœa, and under the use of tonics, &c. he again improved somewhat; but the discharge from the stump continued unhealthy and copious: the excoriated parts on his body took on a sloughing disposition, and he died on the 16th of January, completely exhausted, and emaciated to a mere skeleton.

On examination of the amputated limb, the following condition of the parts connected with the injury were remarked. An oblique fracture of the femur, about $2\frac{1}{2}$ inches above the knee; the

lower fragment of the bone bent on the knee by the gastrocnemius, &c. muscles; had its ragged extremity protruding backwards, between the flexors of the thigh. The upper portion of the femur passed to the outside, and rested on the posterior part of the outer condyle, which by pressure and friction had been absorbed, and allowed of the shaft of the femur entering the knee-joint, occasioning inflammation of the synovial membrane, and destruction of cartilage at the parts where this intruding body passed: the shaft of the bone above, and below, was denuded of periostium, and this membrane appeared to be converted into cartilaginous walls of the large irregular cavity, which included these bony masses, and from which cyst, sinuses passed in every direction, between the muscles. The trunk of the femoral artery and vein were entire.

Examination of the patient after death, six weeks subsequent to operation.

The stump—at the extreme end, where sawn through, the bone had a natural appearance; but from just above this point to the root of the trochanter major, the external smooth shell had been cast off, and the surface of the femur was quite spongy; the periostium widely separated from the bone, formed a loose bony case; sinuses passed up between the muscles, round the hip joint, and along the perineum, filled with dark fœtid fluid, and the condensed cellular structure forming the

parietes of the canals, was of very dark or black colour; the hip and other joints were free from disease.

Chest—the lungs were a complete mass of tubercles; at the anterior and lower parts their size scarcely exceeded that of a pea, and their consistence was cheesy; but towards the upper and posterior portion of these viscera, numerous abscesses of the size of a nutmeg, containing greenish pus, were found. No other morbid changes were detected.

This case beautifully exemplifies the perfect abstinence which nature observes, from any attempt to restore injuries in less important situations, when a mortal disease is in progress in a vital organ; in the preparation it will be seen that no bony secretion has taken place at the fracture, and that the fractured extremities are in the same ragged state, as they probably were immediately after the accident; it also very decidedly proves the inefficiency of short splints, in keeping up extension, maintaining the parts in a proper position, or preventing motion at the fracture. In scrophulous constitutions, those tainted with syphilis, abuse of mercury, or where the general health has been much impaired, either by climate, or other causes, the reparation of injury is usually very tardy, and fracture of bone is occasionally produced by almost incredibly trifling violence, as in the preceding and following cases:

April 25, 1832. A stable-keeper, in Calcutta, had his arm fully extended in the act of seizing a guinea fowl, when the bird struck him on the arm with its wing, and fractured the humerus transversely through the middle of the bone; the man had for several months previously suffered from chronic rheumatism, and his general health was very indifferent. Under the use of alterative tonics, his health improved, and the fracture united in less than five weeks.

Case 2.—*Fracture of the Neck of the Femur within the Capsular Ligament.*

Mr .W—, Æt. about 32; Purser of an Indiaman. Fell from the top of an upper-roomed house, and in descending, struck his right hip against the projecting ledge of a window of the story below. On attempting to rise, he found that his right leg sunk under him. Pain and swelling ensued about the hip-joint; for the relief of which, he was treated with leeches, blisters, &c. &c. After three weeks his sufferings were considerably mitigated, but he had no power whatever over the limb. He now became a patient of the General Hospital, under my charge; at which period his symptoms, were, pain at the groin and about the hip; tenderness on pressure beneath the edge of the psoas and iliacus muscles, over the joint, and behind the trochanter major; slight eversion of the foot when in the erect position, and pain on inverting it; but when in an horizontal position, in order to avoid pain, he found it necessary to turn the knee rather inward,

and place a pillow under the trochanter major; in performing which action, he occasionally perceived a grating sensation at the hip. By accurate measurement from the anterior superior spinous process of the ilium, to the base of the patella, or tubercle of the tibia, there was a difference of length of one inch from the natural limb; on drawing down the limb, and at the same time turning it inwards on the pelvis, crepitus was distinct; and particularly so, if the trochanter was pressed towards the acetabulum. Standing on the sound extremity, he had no power of advancing the fractured limb, so as to raise the toe from the ground; bearing with the slightest weight on the injured limb occasioned pain at the hip, and the trochanter appeared to rise higher than natural.

Exactly one month from the date of the accident, (on the 19th of June, 1831,) he was placed in Mr. Amesbury's fracture bed, the limb extended to what appeared the natural length; the pelvis fixed, and splints applied so as to press the trochanter towards the acetabulum: he continued on the apparatus up to the 14th of August, when he was removed to a common bed, and friction, &c. &c. had recourse to for the purpose of relieving stiffness of the knee, &c. After another fortnight, he was capable of standing, became perfectly strong in the limb, which in length and appearance resembled the sound one, and shortly after left the hospital. At that time I certainly considered that bony union had been established; but I after-

wards had reason to doubt the fact, as on a subsequent admission into hospital, (after about three months,) for the relief of another complaint, I found that he limped in walking, which appeared to arise from a drooping at the hip joint; he however attributed it to stiffness at the knee, which may have been the case, or the uneasiness at the knee may have been sympathetic. He recovered good use of his limb, and well satisfied, returned to England.

In a similar case, I would keep the patient longer on the fracture bed, which he found so comfortable, that he preferred it to the common one.

CASE 3.—*Fracture of the Femur through the upper third of the bone.*

June 12, 1831. Mr. C.—, Æt. about 35, fell into a deep dock, and fractured his thigh high up. I saw him the day following that on which the accident occurred; there was much inflammation and swelling, for which leeches and purgatives and cold application were prescribed: the next day tumefaction had somewhat abated, and on examining the limb, I found an oblique fracture through the upper third of the femur, with two and half inches shortening, everted foot, &c. &c. &c. He was now (June 14th) placed on Mr. Amesbury's fracture bed, and the limb extended to its natural length; which being accomplished, he expressed himself free from pain. His diet was properly regulated,

and the bowels kept moderately open by mild laxatives.

He continued on the apparatus without inconvenience, until the 24th of July, when the limb was found to be firmly united. By exact measurement from fixed points, there appeared to be $1\frac{1}{4}$ of an inch diminution of length from the natural one; but the patient could not perceive that they differed, did not require the sole of the shoe to be thickened, and could scarcely be observed to limp in walking.

Case 4.—*Oblique fracture through the middle of the Femur.*

Mr. M—, Æt. about 25 years, was received into the General Hospital, on the 19th of September, 1833, with a loose oblique fracture through the middle of the femur, retraction rendering the limb two inches shorter than natural; eversion of the foot, and other symptoms of this accident were present.

The extremity was put up in Amesbury's apparatus with the brass plate, and extension effected so as to bring the limb to its original length. As soon as the fracture had been set, the man was relieved of the pain he had previously suffered; no alteration was made in the adjustment of the machine during the whole process of cure, and on the 1st of November, or after one month and twelve days, perfect union having been established, the

splints were removed, and measures resorted to, for the purpose of relieving the stiffness always occasioned by confinement of joints in the same position for a considerable time.

In consequence of the instrument having slipped, over the tuberosity of the ischium, the limb which sustained the injury is by measurement, a slight degree shorter than the other ; but the difference is so trifling, that the patient says he does not perceive it in walking : in every other respect the limb is as perfect as it was before the accident happened.

CASE 5.—*Compound Fracture of the Tibia.*

Mr. B. Æt. about 30 years ; a man of full habit, and accustomed to live freely. Was ten days previous to his admission into the General Hospital (on 28th June 1832), struck on the leg three inches below the knee, by a portion of the barrel of a pistol which had burst, causing a fracture, with extreme state of comminution, of about two inches of the tibia, and a large ragged wound communicating with, and laying bare, the broken ends of the bone. A very copious grumous fœtid discharge poured from the opening, in which numerous small spiculæ and powdered portions of bone were mixed. The integuments surrounding the wound were dark-colored and flabby, from accumulation of pus in the cellular structure beneath ; he was labouring under considerable sympathetic febrile excitement, and had had no evacuation

from the bowels for four days. The fibula remained entire. The limb, which had been previously put up with short splints, was now placed on Amesbury's apparatus, the wound loosely dressed with lint, cold lotion applied to other parts of the extremity, and the bowels acted on by a purgative daily: under this treatment, the constitutional symptoms quickly subsided, the appearance of the wound improved, and the discharge from it, became by the 15th, "healthy pus;" by this time, several large pieces of bone had come away, the wound slowly diminished in size, but the discharge continued copious, occasionally changed to more unfavourable character, on the bowels being disordered, or other derangement of the system occurring; improving again, on the disappearance of these inconveniences. In January 1833, his general health began to fail; tonics were administered, and a more nutritive diet with beer allowed him; on which he again recovered good general health, but the wound continued to discharge, although the fracture had united firmly. On the 24th of March, it was necessary to make a counter-opening three inches below the original wound, in consequence of an extension of suppuration on the inner and anterior part of the leg; from this opening several pieces of bone were, from time to time, extracted. On the 10th of May following, after between 40 and 50 portions of bone, varying from half an inch in length and quarter in breadth, to the size of a barley-corn, had been expelled, the wounds healed; but after a day or two, an opening again formed,

from which yellow pus continued to issue. On the subsequent September, this man died of dysentery, and I was fortunate enough to procure the tibia which had formerly been fractured.

In the preparation it will be remarked, that the external solid structure of the bone has strongly united at each angle, and in great part on the posterior surface, whilst a large hollow remains on the anterior face of the tibia, passing upwards through the cancellated structure, and opening posteriorly in two smaller holes, between which passes a strong bar of bone, uniting the upper and lower portions.

This case exhibits a fact of much practical importance in the surgery of compound fractures of the leg; namely, that in cases where there has been much destruction of bone, and injury of the soft parts, bony union may be established between some parts of the ends of the bone, whilst at others, breach of continuity remains, the sinuses do not take on a healing action, and consequently a copious discharge continues.—Now under such circumstances, with Mr. Amesbury's or other apparatus, which will command the positive motions of the limb, the patient may be allowed to leave his couch, and sit up, take a gentle exercise in a palankeen or wheeled chair, with advantage to his general health and local disease, and without the slightest apprehension of danger; whilst the sickness of a protracted confinement will be considerably mitigated.

I have at this time under my charge a gentleman, whose situation much resembles that of the person whose case has been just related. Partial, firm, bony union is attained, but a copious discharge continues. He is allowed all the liberties I have mentioned as admissible, which he not unfrequently ventures to exceed, and without ill consequence*.

Case 6.—*Compound Fracture of the Leg.*

H. B. Æt. about 32 years. Was admitted into the General Hospital on the 24th of March, 1833, with a compound fracture of the leg above the middle, which had been received sixteen days previous.

A large wound, more than two inches long and one inch broad, exposed the broken ends of the tibia, and from which a copious greenish-coloured pus issued: on the outer side of this wound, surrounding the fractured ends of the fibula, a deep seated abscess had formed, occasioning much pain; the limb was swollen, and there was considerable febrile excitement. Bowels not acted on for several days. The abscess was cut down upon, and about an ounce of yellow pus escaped, which afforded relief. The limb was put up in Amesbury's apparatus, the wounds dressed with lint, and the

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* Since this paper was written, I have had the satisfaction of seeing this patient recover.

bowels daily acted on by mild purgatives. By the 11th of May, the wounds had healed: the machine was kept on until the 14th, when it was removed. During the cure, the wounds were dressed regularly without derangement of, or any interference with, the apparatus, beyond occasionally tightening the straps, and the patient was discharged from Hospital on the 20th with so perfect a limb, that excepting cicatrices where the wounds had formerly existed, there was not a sign of the accident observable.

CASE 7.—*Compound Fracture of the Tibia.*

March 5th, 1832. J. M. Æt. 42 years; was struck with a large club on the right leg, which caused a compound fracture of the tibia two inches below the tubercle. Two wounds, each about half an inch in length and breadth, communicated with the ragged ends of the bone; the limb was inflamed and swollen.

Mr. Amesbury's apparatus was loosely applied, the wounds dressed with lint, other parts of the limb kept cool with lotion, and a purgative administered. As soon as circumstances admitted, the limb was more securely fixed in the machine, and his bowels were daily acted on: the case proceeded favourably. On the 1st of April the wounds having healed, he was allowed to leave his bed, and move about on crutches. On the 19th of the same month the apparatus was taken off, the limb being quite sound, and free from deformity.

CASE 8.—*Simple Fracture of both bones of the Leg.*

W. M. Æt. 29 years, was brought to Hospital on the 5th of February, 1833, with a simple fracture of the tibia and fibula, two inches above the ancle joint; the limb was much deformed, and the pain and swelling was considerable: 30 leeches, cold lotion, a purgative, and low diet prescribed.

6th. 24 leeches and purgative, and up to the 11th, cold lotion and laxatives were continued: the limb having during these seven days been laid on the side. On the 12th, the tumefaction and pain having subsided, Amesbury's apparatus was applied; he was allowed a milk diet, and soup, up to the 15th, when it was increased to a diet of animal food. On the day on which the splints were applied, he left his bed and sat up in a chair, daily walked about the compound of the Hospital on crutches, and occasionally went out in a palankeen. On the 24th of March, the apparatus was removed; firm consolidation of the fractured bones had been established, and the limb was of the natural shape and length.

MY DEAR SIR,

If you consider the following case of successful employment of Amesbury's splints, of sufficient interest, you can publish it with the others in your paper about to be sent to the press.

Your's very truly,

W. TWINING.

Calcutta, 3rd April, 1834.

"J. Herrick, aged 41 ; a tall thin man, who had resided in Calcutta 18 months, was admitted into the General Hospital on the 3rd October, 1829, with a compound fracture, about five inches from the lower end of the right tibia ; the lower end of the bone protruded in front ; the fibula was fractured about an inch lower than the tibia. The injury was the result of a blow from the wheel of a buggy. The projecting bone could not be reduced until a portion of the tibia was sawed off. Very extensive suppuration took place; there was a profuse discharge of matter, for many months, and numerous portions of bone exfoliated.

" On the 22nd February, 1830, the wound had nearly healed, and union of the fractures had taken place ; but the union of the tibia was in slight degree flexible. On the 11th March, the patient had an attack of Hepatitis, which required active depletion, and leeches to the side daily, for ten days. The wound occasionally closed for a few days, but exfoliations of bone continued to occur from time to time, up to the 23rd September, 1830

"On the 14th January, 1831, he was obliged to leave Hospital on account of business :—the union of the fracture of the tibia remaining flexible, notwithstanding the application of pressure by the common splints. He now walked with the assistance of a stick, but was always sensible of the flexibility of the union at the fracture of the tibia.

"Herrick returned to Hospital on the 29th April, 1831; a very slight degree of mobility being then perceptible at the fracture of the tibia, the fracture of the fibula having united without such degree of shortening as to admit of the fractured ends of the tibia coming into actual contact; in consequence of which, bony union at that part had not taken place. The muscles of the limb were wasted. Cold water was now poured on the part from a height, and cane splints applied firmly, but without any benefit.

"On the 24th July, Amesbury's splints were applied, and the ends of the tibia pressed firmly together, by drawing up the foot-board. The patient was now allowed to go about the ward with crutches. On the 22nd September, the apparatus was removed, and the fracture of the tibia was found firmly united by bone. The foot was swollen and the knee stiff from continued rest in one position. By gradually moving the knee-joint, the stiffness was removed, and this man was able to walk. The limb was shortened, in consequence of the portion of bone that had been sawed off, as well as the subsequent exfoliations."

OBSERVATIONS ON GOITRE.

By J. McCLELLAND, Esq.

Presented January 2, 1834.

Conclusions derived from investigations into the nature and cause of goître, in Kumaon: with a view to its prevention and cure.

I. In primitive districts, where limestone does not exist as a principal rock-formation, goître is not found, or if found, it is only in the proportion of one to five hundred of the population.

II. In transition and flœtz districts, where limestone prevails, one-seventh of the whole population are affected with goître.

III. In districts II. the population are not equally affected in every village: but one village is affected in the midst of others which are healthy, and vice versâ.

IV. That goître does not depend on temperature, altitude, or aspect of irregularities on the surface of the earth, on hereditary taint, nor on the usual causes of glandular enlargements in other parts of the body.

V. That those villages, in which goître exists, are always erected on, or in close vicinity to, great

limestone formations; and that the water is always furnished, for the use of the inhabitants of such villages, by springs which are derived from limestone rocks.

VI. No instance to the contrary of V. has occurred to the author; though his observations have been extended over the space of 1,000 square miles, nearly: and conducted by himself in person, without a view to the support of any particular theory, or to the formation of a new one.

VII. That the morbid principle in the water is removed, or modified, according to the distance it runs; in channels of alluvial earth, impregnated with animal or vegetable matter, before taken for use.

VIII. That goître affects both sexes indiscriminately: and children are exempt from it, until the age of three years.

IX. In villages, where goître prevails, it is not usual for the lower animals to be affected by it; and as no instance of the kind has occurred to his notice, the author concludes that the tumors observed by others on the necks of animals belong probably to a distinct disease.

X. The lowest caste of persons are here generally the slaves of the higher orders of Hindoos. They are more subject to the disease than their masters, who are less exposed to the noxious influence of the water.

The following tabular views of the villages in Shore valley may suffice at present to shew the nature of the investigations, on which the above conclusions are founded. It is the author's intention to submit a detailed account of the subject to the public, in an Appendix to a work which he intends to publish, on the natural history of the eastern frontier of Kumaon.

The geological maps of his intended work; as well as the general and particular topography of numerous villages, vallies, and districts, will, it is hoped, be thought sufficient to justify what has been said, in the foregoing conclusion: which, in hope of their being useful, he loses no time in submitting to the Society.

Tabular view of the villages in Shore valley, extending into the vallies of the Mahi-kalee and Ram-gunga rivers. The villages are taken indiscriminately, with respect to goître; and all villages connected with the military cantonments, as well as those that have changed inhabitants, since 1815, the period at which the country fell into the hands of the English, are excluded. The villages are inserted in the list, in the order of their connexion with each other. Their mean annual temperature is about 62° Fahr.—mean altitude, about 3.800. They are all interspersed in a space of 16 miles long, and five broad. Lat. 29° 38′ N. Long. 80° E.

Names of Villages.	Number of Brahmins and high-caste inhabitants.	Number of low-caste inhabitants.	Total.	Rock from which the spring is derived which supplies the village with water for the use of the inhabitants.	Number of Brahmins and other high-caste inhabitants affected with goître.	Number of low-caste inhabitants affected with goître.	Rocks on which the villages are erected, and whether watered by a well or a running stream from spring in a distant rock.
Bhestee, ...	60	0	60	Clay-slate, ...	0	0	Clay-slate—by a well.
Pandah, ...	25	0	25	Clay-slate, ...	0	0	Clay-slate—ditto.
Salmorah, ...	7	7	14	Trans. Limestone	2	4	Transition limestone, by wells for each sect.
Celouly, ...	25	0	25	Clay-slate, ...	0	0	Clay-state—by a well.
Murh, ...	40	30	70	Granitine, ...	2	3	Rock composed of limestone, talc, and rhomb-spar, by a distinct well for each sect.
Goserahgong.....	10	8	18	Trans. Limestone	7	5	Transition limestone, and conglomerate of flœtz ditto,—water is taken for use as it emerges from a fissure in the rock.
Jeebee, ...	0	20	20	Trans. Limestone	0	7	Clay-slate, coated with calc.-tuff, watered by a stream which issues from the limestone rock, but which runs half a mile in a bed of slate and calc.-tuff, before it is used.
Sâth-gelunge,.....	0	40	40	Clay-slate, ...	0	2	Clay-slate. This village is situated close to the two last described. It is watered by a spring in clay-slate.
Poneree, ...	48	6	54	Clay-slate,.	3	1	Watered by two streams, one of which is derived from the limestone cap of the mountain under which it is situated, and the other from clay-slate of the same mountain.
Bajeetee,.....	20	30	50	Limestone, ...	3	13	Clay-slate—watered from wells in a ravine through which a stream runs, which deposits calc.-tuff—the wells are below the level of the stream—and consequently impregnated by it.
Popdeon,.....	50	30	80	Limestone, ...	8	10	Situated on clay-slate—watered the same as Bajeetee, but nearer the source of the stream.
Paruree, ...	60	0	60	Clay-slate, ...	0	0	Clay-slate—by a well.

Panoorah, ...	70	20	90	Clay-slate and lime-stone, ...	1	6	The Brahmins use the water from a well in clay-slate, and the Doomes use it from a stream from the limestone caps.
Dungaunee, ...	25	0	25	Clay-slate, ...	0	0	These two villages are situated in an open part of the valley, and
Buzallah, ...	18	22	40	Clay-slate, ...	0	0	derive their water from wells in clay-slate.
Kumorah, ...	70	0	70	Clay-slate, ...	2	0	Clay-slate, slightly coated with calc.-tuff—well in clay-slate.
Jakannee, ...	30	0	30	Clay-slate, ...	0	0	Clay-slate—well in clay-slate.
Chauser, ...	40	10	50	Clay-slate, ...	0	0	Clay-slate—ditto ditto.
Beerah, ...	0	40	40	Clay-slate, ...	0	0	Ditto—ditto ditto.
2 small villages,...	30	0	30	Clay-slate, ~~~~~	0	0	Limestone and clay-slate—a well in clay-slate.
Choudah, ...	25	0	25	Limestone, ~ ~~~~	7	0	Conglomerate of slate and calc. tuff—water in stream from limestone which deposits calc.-tuff.
Deota,.....	80	0	80	Limestone, ~~ ~~~	60	0	Conglomerated limestone and calc.-tuff. a spring which issues from the transition limestone, through a bed of red marl and gravel, to which the water gives adhesive properties, converting it into a conglomerated solid rock.
Nineè,.....	80	0	80	Clay-slate, ~~~~~	0	0	Clay-slate—watered by a spring in clay-slate. This village is situated within half a mile of Deota, and has no point of difference but in the supply of its water.
Burkôte, ...	100	0	100	Clay-slate, ~~~~~	0	0	Clay-slate—well in clay-slate.
Kotillea,.....	50	0	50	Clay-slate, ~~~~~	0	0	Ditto—ditto ditto.
Reuena, ...	50	0	50	Partial sandstone,	0	0	Partial sandstone formation—well in sandstone.
Deocolla and Dingas, ...	40	0	40	Partial sandstone, Clay-slate and overlying limestone,~~~~~	0	0	Partial sandstone—well in clay slate.
Chupuckea, ...	40	0	40	Clay-slate, ~~~~~	0	0	Clay-slate and overlying blocks of transition limestone—wells in clay-slate.
Guakote, ...	40	0	40	Clay-slate, ~~~~~	0	0	Clay-slate—well in clay-slate.
Loilure, ...	100	0	100	Clay-slate, ~~~~~	0	0	Ditto—ditto.
Koosoolee, ...	25	0	25	Clay-slate, ~~~~~	0	0	Ditto—ditto.

Names of Villages.	Number of Brahmins and high-caste inhabitants.	Number of low-caste inhabitants.	Total.	Rock from which the spring is derived which supplies the village with water for the use of the inhabitants.	Number of Brahmins and other high-caste inhabitants affected with goître.	Number of low-caste inhabitants affected with goître.	Rocks on which the villages are erected, and whether watered by a well or a running stream from spring in a distant rock.
Kasenea,.....	15	0	15	Clay-slate, ...	0	0	Clay-slate—well in clay-slate.
Murakote, ...	40	0	40	Clay-slate, ...	0	0	Ditto—ditto.
Gune, ...	10	0	10	Limestone, ...	5	0	Clay-slate—a stream from a spring in limestone.
Oliel and Cubulcalla, ...	10	15	25	Limestone, ...	4	9	Limestone—one-third of the inhabitants of these two villages are cretins.
Beescolly and Bagoltally, ...	50	0	50	Limestone, ...	15	0	Limestone and slate—water derived from a stream which issues from the limestone, and runs a considerable distance before used.
Goorat, ...	24	0	24	Limestone, ...	10	0	Clay-slate and conglomerate of slate in calc.-tuff. stream from limestone. A family of cretins in this village.
Bursar, Ruttygong, Julsar, Saugur, Doomera, and Chumalloo, ...	100	0	100	Limestone, ...	60	0	These villages are situated in the valley of the Ramgunga. The whole of which in their vicinity is composed of limestone of the transition and flœtz periods.
Total,...	1507	278	1785		189	60	

Abstract of the foregoing Table.

Character and number of villages.	Population.	Affected with goître.	Proportion of the affected to those who are healthy.	Names of the villages.
No. 19, villages erected on limestone, and whose inhabitants use the water from springs in different varieties of that rock. These villages have every variety of altitude, aspect, and temparature, ...	476	229	50 per cent. nearly.	Salmorah, Goserah, Jeebee, Bajeetee, Popdeon, Choudah, Deota, Gune, Oliel and Cubulcalla, Beescolly, Goorat, and seven villages in the valley of the Ramgunga river, viz. Bursar, Ruttygong, Julsar, Saugur, Doomera, and Chumalloo.
No. 1, village erected on a rock composed of Calc.-spar, Rhomb-spar, and Talc, ...	70	5	about 7 per cent.	Murh.
No. 24, villages erected on clay-slate, and whose inhabitants use the water from springs in that rock. These villages are every where interspersed through the valley, and like the others, they have every variety of aspect, altitude, and temperature, ...	1239	15	$1\frac{1}{4}$ per ct. scarcely,	Bhestee, Pandah, Celouly, *Sâth-gelunge, *Poneree, Paruree, *Panoorah, Dungaunee, Buzallah, *Kumorah, Jakannee, Chauser, Beerah, Nineè, Burkôte, Kotillea, Reuena, Deocolla and Dingas, Chupuckea, Guakote, Loilure, Kasenea, Koosoolee, and Murakote.
	1785	249		

It is seen from the foregoing tabular views of the villages of the valley of Shore; that 50 per cent. of those who inhabit limestone rocks are afflicted with goître: while only one and a quarter

* In these villages the goître is referrible to the same cause.

per cent. of those who inhabit clay-slate, in the same vicinity, are affected by it; and in those parts of the same mountains, where limestone does not exist, we find the disease so rare, as only to affect one in five hundred, as in the neighbourhoods of Lohooghaut and Kalee Kumaon. Should inquiries of this kind be attended with as favourable results in other parts of the world, as in the eastern frontier of Kumaon, (which there is every reason to believe will be the case,) several thousand victims may be annually prevented from falling sacrifices to a loathsome and fatal disorder. With respect to the treatment of goître: the only part of it, that it is necessary here to allude to, is the necessity of changing the accustomed water; and to substitute for it, the water of a spring known to be wholesome. This is better decided by the appearance of persons who have used it for a long time, or by the absence of limestone from the spring, than by any chemical analysis. For, to persons whose daily injesta consists only of water and farinaceous vegetables, the purity of this fluid is of more importance, than an European might at first be aware of; and it is easy to conceive, that a noxious principle, that requires years to develope a local effect on the glands of the neck, might easily escape detection, even by the most careful analysis. I do not mean to say, that the noxious principle in some of the springs in districts where goître prevails, is too minute to be detected; but merely, that too much dependence should not be

placed on such a test, when the quantity of water consumed is so great, and the morbid effect so slow and local. The change of the accustomed water is therefore the first thing to be recommended; and it is often the only thing that is necessary.

In districts where the goître prevails, the whole of the springs may be impregnated with the noxious principle; and from poverty, or a dislike to part from his family, the patient may be unable to avail himself of a change of locality. In such cases, the importance of what is stated, VII. requires no remark; and should it prove well founded, on further inquiry, it will place in the hands of the inhabitants of affected districts, the means in most cases, of averting the disease altogether. From its importance, it may be well to state the reasons on which the belief in question is founded.

1st. Near the village of Salmorah there is a family of persons who have been always exempt from the disease, though so circumstanced as would, *a priori*, induce the belief that they must be affected. They use the water from a limestone spring a mile distant, but is conveyed to them in a small stream which passes through highly cultivated land.

2nd. The village of Doomera is surrounded by villages, whose inhabitants are affected, to the extent of above half their population; and of

twenty-five persons, only two or three of the aged inhabitants of this village are affected; the young being all free, all exempt. The water used is here derived from the same source as that of the surrounding villages; but for 15 years it has been conducted in an artificial stream through cultivated fields for the distance of a mile.

3rd. The village of Jeebee, whose inhabitants are only affected, in proportion of one-third, use similar water to the inhabitants of Gooserahgong: but in the former village, it is taken for use half a mile from its source; while in the latter, it is taken for the same purpose, as it issues from the rock. The same thing is illustrated by the villages of Papdeon and Bajeetee.

It would be tedious in this place to multiply facts of this nature. Enough has, perhaps, been said to justify the conclusion in question.

With respect to X. the greater prevalence of the disease among Doomes, or low-caste persons, is referrible to their poverty; which compels them to use more water, and less milk, than their superiors, as well as to the prejudice of the Hindoos of these hills, which refuses to the Doomes, the privilege of partaking with their Brahmin and Rajpoot neighbours the water of the same spring. The excluded caste are therefore often obliged to use this fluid from impure sources, as in the village of Panoorah.

Before concluding this summary, it might be proper to adduce instances of the difficulty and address required to ascertain precisely, on all occasions, the rock from which particular springs may be derived, especially in limestone districts: but it would be presumptive in the author to offer any remarks on the subject, in this place. It may be startling to some, to be told, that water from springs in limestone is different from that derived from springs in other rocks; or that, it should have any specific property. This however appears to be the fact, as far as these observations have been extended.

OBSERVATIONS

ON

ELEPHANTIASIS*.

By T. A. WISE, M. D.

Presented Dec. 4, 1833.

A LONG residence at Hooghly has afforded me many opportunities of examining this disease in its different stages, as there are few families in the

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* The synonyms of this disease may be reduced:

1st. To those which have been given to it in the languages of Asia;

गोद *Gód*, in India.

श्लोपद *Shlípada*, कोषवृद्धि *Koshavriddhi*, &c. in Sanscrit.

فیل پا *Fil Pa*, of the Persians.

داء الفیل *Dau-ool Fil* of the Arabians.

دوالي *Duwaulí* when the swelling affects other parts of the body.

2nd. Names given to it from its supposed locality:

Barbadoes' Leg.

Glandular disease of Barbadoes.

Phlegmasia Malabarica.

Cochin Leg.

Perical Malabaris endemicum.

Pædarthrocaces Christianis Sancti Thomæ familiaris.

Peju de Sancto Thoma Lusitanis Indis.

district which have not one or more of its members affected with elephantiasis. The men with one or both legs or sides of the scrotum, the women with the leg or labia pudendi of one or both sides.

An attack of elephantiasis is usually preceded by a feeling of listlessness, a lowness of spirits, thirst, deranged bowels, and a want of appetite. This is followed by a sudden feeling of pain in the groin, extending along the anterior and inside of the thigh when the leg is the part affected. In other cases, the pain is confined to the foot and leg; which are hot, swelled, and sensible. This local irritation is quickly succeeded by a rigor,

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Kojassi Japponensibus. Elephantia, arabum. E. norvegian. E. Javanensis. E. Orientalis. E. Indica.

Bucnemia Indica.

3rd. From its peculiar nature:

Glandular disease of Barbadoes.

Hypersarcosis ulcerosa pedum.

Pes febricitans. Fievre erysipélateuse.

Lèpre tuberculeuse éléphantine.

4th. From its situation:

Elephantiasis of the leg.

Elephantiasis of the scrotum.

Hernia carnasa. Sarcocele d' Egypte.

Oscheocele Malabarica. Landrum ou Hydrocéle endémeique de Malabar.

In the course of the following observations reasons will be given for supposing that most of the names enumerated above are improper, from being founded on erroneous principles. On this account I retain the generic name *Elephantiasis* which was employed by Rhazas, the first author who accurately described it, and retained by Drs. Towne and Hillary in their interesting publications on the disease.

and pain in the head, back, and loins, which is followed by sickness, and sometimes vomiting, and great langour, lassitude, and prostration of strength. The pulse becomes hard and frequent, the skin hot and dry, and the patient complains of a burning sensation over the body, and great pain in the leg and foot affected, and often in the head. This hot stage is succeeded by local and general perspirations, with a feeling of relief in all the distressing symptoms. This febrile attack continues for two or three days; during which it usually increases for 12 hours, and after remaining a day or two in that state, slowly diminishes. During the attack imperfect morning remissions and afternoon exacerbations may be observed, which vary in degree from a well marked state of fever to one that is scarcely observable. In general, during the continuance of the attack, the patient lies in bed, complains of great languor and feverish uneasiness, is distressed by speaking and noise of all kinds, breathes with an effort, and complains of pain in the head and leg. The tongue is covered with a thick white or yellowish coating; he has no appetite, and is prevented taking food, as the natives suppose it will increase the disease; and for a like reason, he is very rarely allowed to gratify his thirst. During the paroxysm any movement is accompanied with pain in the part affected, which often prevents him walking for days after the fever has disappeared.

When the groin and thigh are examined in the acute stage, a swelling may be discovered, which extends to the knee-joint, or even to the foot, following in this course the various branches, and is indicated by the pain and sensibility of the part on pressure; the neighbouring cellular tissue of the thigh and leg is swelled, over which a network of veins frequently appears, having in some places a hard round cord-like feel, with an erysipelatous blush of inflammation over the course of the veins thus affected. The state of these vessels are best observed in the acute primary attacks of the disease. In one case, I found after a paroxysm, the trunk of the saphena major vein prominent on the bent knee-joint, with a hard cord-like feel, and a swelling upon the anterior part of the leg, from which many branches of the vein affected, during the paroxysm, had arisen. In other cases, the local inflammation is confined to the foot and leg; which becomes swelled, hot, and pits on pressure being made upon it, while the lymphatic vessels and glands of the thigh and groin, continue without any apparent change.

These prominent veins in the neighbourhood of the inflamed part during the acute attack "are found," says Dr. Towne, "much distended with varicose swellings, which are very apparent from the knee down to the extremity of the toes*." As the disease advances, the local inflammation dimi-

*. Disease of the West Indies. Ed. 1726, p. 185.

nishes, and the distended veins disappear in the increased swelling of the part.

The degree and extent of this local inflammation varies in different cases, and depends on the constitution of the individual, the stage of the disease, and severity of its exciting causes. The degree of the swelling varies likewise in different cases, and is first observed along the course of the inflamed veins, and the parts from which they arise, especially in most depending parts, where the cellular tissue is in largest quantities; and it varies in its nature according to the severity of the inflammation and the frequency of the previous attacks. As the local inflammation diminishes, the swelling enlarges, and generally pits on pressure being made upon it, but becomes harder and more or less incompressible, and is generally of a smooth red colour. It has then an uniform figure, and the skin appears distended, especially when there is much lax cellular tissue, as on the dorsum of the foot and about the ankles. After several days duration, the cuticle desquamates, and the person feels comparatively well.

The first attack leaves generally no permanent swelling, but disappears when the paroxysm has passed. The person is again attacked at uncertain periods, with some local and constitutional symptoms, and after several paroxysms, a swelling is left, which is augmented by each attack, and diminishes during the intervals. This diminution

becomes less marked after the disease has continued a considerable time ; as in this case the veins of the part become more extensively diseased, but from the swelling, it is often impossible to detect their state, and even when we have an opportunity of dissecting parts which have become deformed by the slow depositions after each accession of the inflammation, it is difficult to determine in what state the vessels are in, during the paroxysm.

Sometimes the distended skin bursts or ulcerates in a severe attack, and a discharge of a serous fluid takes place with great relief to the patient. This fluid, as its temperature diminishes, sometimes coagulates into a white mass. In other cases, these acute local symptoms terminate in abscesses in the leg or foot, the discharge from which mitigates the symptoms.

These attacks of fever and inflammation may occur frequently, or at considerable intervals. In general, however, after exposure to the exciting causes, of which cold and moisture are the principal, these attacks occur more frequently, and the *moon* may be observed to have a remarkable influence in producing the paroxysm. In many cases it takes place at the change of the moon, in others, at the full, and in some, more especially at the commencement of the disease, at both change and full moon ; and in the young and plethoric subject, even at shorter intervals.

The disease is more rapid in its course in young and strong persons, than in old and weak ; and as the swelling of the leg increases the regularity of the paroxysms, and severity of the inflammatory symptoms diminish ; and from the 12th to the 20th year, they no longer recur with their previous severity or regularity. In this late stage of the disease, the person seems in good health, the functions of the body retain their natural vigour, and the patient feels no other inconvenience but that of dragging about such an enormous mass.

In plethoric individuals, the disease continues with little intermission in a state of excitement, and the deformed skin is exquisitely sensible. In both Mr. Chevalier's cases, the individuals could not walk for years, on account of the size and irritable state of the limb. "One of them was utterly unable to bear being lifted up into the erect posture, and could only be gently raised from her seat with exquisite pain ; mortification at length put a period to her misery*."

In the more chronic form of the disease, as seen in this country, individuals may be often seen performing, in the usual manner, all the duties of servitude, until the approach of another paroxysm, when the feeling of weakness or uneasy listlessness, deranged bowels, and want of appetite, which ushers in the attack, generally continue

* Medico-Chirurg. Trans. v. ii. p. 69.

after the paroxysm has terminated, and the functions of the deformed part are impeded by the increased swelling. In old cases, the local exacerbations recur without any perceptible disturbance of the system.

When the part is examined, after numerous paroxysms, it is found much enlarged, and has a hard equable shining and desquamating surface, which pits sometimes on hard pressure being applied. The leg and upper part of the foot are the parts principally swelled, and very large deep fissures are often found on the anterior part of the leg, from the movements of the ankle-joint, and the strong fascia covering that part. In other patients, in particular, when the disease has been long present, the skin becomes swelled in large tumors, or folds, which in some cases hang over others of a smaller size. This appearance is explained by the vessels which are principally affected arising from these parts, and by the quantity of cellular tissue which is bounded by the unyielding nature of the fascia, or continual movements of neighbouring joints, which prevents the enlargement of these parts. In some cases, I have found these tumors of the natural colour, as large as a child's head ; sometimes they are in clusters, at the lower part of the leg. In other cases, numerous tumors of different sizes are found on the upper part of the foot, and lower and anterior part of the leg, from a very minute, to a large size, when they have often a pale colour, approach-

ing to white, with varicose veins ramified along the surface of the large tumors. These tubercles and tumors are distinguished from the tubercles of Lepra tuberculosa, from being in the one case, round and pendulous, and generally connected by a neck to the leg, while the latter are flat, irregular, and large at their connecting base.

The skin often continues of the natural colour and structure for years after the first attack; when it becomes of a darker colour, feels dry, with frequent desquamations of the cuticle, particularly after acute attacks. The structure of the cutaneous tissue becomes thickened, the cuticle being generally of a thin chopped and scaly appearance; which, in the native, becomes almost insensible, and in some places it takes on the dark horny appearance of ichthyosis. These changes seem first to be owing to an extension and thickening of the cuticle, which leaves it in a morbid state.

Fissures between the large swelling in the foot and lower part of the leg often discharge a thin transparent-looking fluid, which frequently becomes like jelly on exposure to the air; in other cases, this discharge takes place near the toes, from the abraded or ulcerated surfaces, or heads of some of the tubercles; particularly during the exacerbations, which are relieved by the discharge. These ulcers are superficial, and sometimes are

of a large size, with a hard edge, and indolent surface, and are cured with great difficulty.

In some old cases, the appendages of the skin or toes become gangrenous and fall off; and in the more acute forms, which occur in Europeans, the disease often terminates in mortification of a part of the diseased member. Elephantiasis commences in the same manner in the lax depending scrotum as in the leg. The periodical attacks of local inflammation and fever commence with pain, and a cord-like feel along the course of the veins arising from the scrotum ; which have generally a blush along their course, as they extend over the part affected; feel sore, are sensible to the touch, and numerous enlarged veins are seen ramified on their surface. The part enlarges during the acute stage, and as the local inflammation diminishes, the swelling feels soft, so as to pit upon pressure from the unusual quantity of serum in the cellular tissue, and serous sac of the affected side, while the other side remains in its natural state. The testicle of the side affected participates little in the disease, until the cellular tissue becomes so generally swelled as to affect the neighbouring parts, when one or both, sometimes, become enlarged, and in this aggravated form the cellular tissue on the opposite side of the raphè may participate. The cellular tissue of the penis generally swells as the disease advances, and becomes of an unnatural size; or often disappears in the large surrounding swelling,

leaving only the extremity of the urethra visible. Over these swelled parts numerous varicose veins are seen extending towards the groin.

In a case which I examined in its first stage, during a paroxysm, I found the whole scrotum enlarged with a blush of red patches on its surface, more especially along the course of the veins, which conveyed a hard cord-like feeling under the skin, when the finger was passed over the part.

The swelling of the scrotum, which at first is soft, and pits upon pressure, afterwards becomes hard, elastic, insensible, and of a dark colour. In many of these swellings the subcutaneous follicles and roots of the hairs appear less developed, forming depression, around which the laxer parts of the skin are left prominent and soft, from the cellular tissue being loaded with a thick gelatinous-looking substance, mixed with serous fluid.

The symptoms of the disease in females, when one or both sides of the labia pudendi are affected, resemble so much those of the scrotum in the male, that it is unnecessary to repeat the description of the affection of the scrotum, with the exception of the slight difference arising from the structure of the parts.

These local symptoms continue for two or three days, recur periodically, and are accompanied with feverish symptoms, as described under the disease as it attacks the leg.

Other parts of the body are sometimes affected with great enlargements of the cellular tissue, which appears to be of the same nature, and increase in the same gradual manner as Elephantiasis of the leg. Hellary has known "the morbid matter fall into an arm each time it came, and he once saw a patient in whom the morbid matter was cast upon the scalp, the ears, and the back of the neck; and another, wherein the matter was cast upon the lower part of the spina dorsi, the os-coxygis and the loins, at each return of the fever."—V. C. p. 313.

Hensiller has given in Haller's Disputationes Chirurgicæ* an account of the disease as it appears in the arm, in the following words: "Haud multo post, tumor brachii sequebatur, quem æger pro erysipelate sibi alias-consuetus, habui; imprimis quoniam post aliquot dies, levis inflammatio progressa rursus evanuit. Idem malum, per aliquot annos sæpius revertens experta est, donec tandem tumor in hanc magnitudínem successive accrevit." Dr. Graves†, in an excellent account of what I have no hesitation in calling the same disease as Elephantiasis, in the hand and arm, says, "it is only seen among the poor, but among them frequently;" and his friend Mr. Evanson says, "that in the south of Ireland, the disease prevails very generally in a particular spot or place, many

* From v. p. 463.

† Dublin Hospital Reports, vol. iv. p. 54.

in the same neighbourhood being affected, and sometimes many in the same family. Men, women, and children are subject to its attacks; some having laboured under it from infancy to extreme old age. They generally describe it as some illness falling into their hands or feet. Fatigue or labour induce paroxysms, and the disease seems most violent in the spring and autumn." (p. 62) Dr. Graves describes it (page 58) as commencing " with general febrile symptoms, more or less severe, and usually attended with marked gastric derangement. In a day or two the back of the hand and wrist become somewhat swollen, and considerably hotter than natural. The skin becomes red in circumscribed, confluent and slightly elevated patches. In some, the outlines of the patches are very distinct; in others, the redness is more diffuse, and has an erysipelatous appearance; in all, it disappears on pressure, and is attended with heat or slight pain. From three to eight days the heat and redness subside, and the patient retains his usual state of health, and the slight œdema it causes soon vanishes. The complaint, however, usually reappears in the course of four or five weeks, and runs precisely the same course, except that the œdema remains longer; and when the disease has recurred five or six times, the swelling becomes permanent, being augmented by each attack, and decreasing during the intervals. In the course of a year or more, the hand is swollen to two or three times its natural size, the increase of bulk taking place chiefly on its

back. The skin becomes thickened, and corrugated, particularly about the wrists, and in the advanced stage of the disease; rhagades and painful fissures are occasionally formed during the exacerbations." In these different varieties of Elephantiasis, which may all be seen in this country, the febrile attack varies in degree, according to the habit of body, the stage of the disease, and the extent and severity of the local inflammation.

Persons affected with Elephantiasis usually live long enough to prove, that the immense size of the affected part does not affect the duration of life, or general health; and the only suffering the person has, is from the periodical attacks of inflammation and fever.

The *remote causes* of Elephantiasis are all such as debilitate and derange the general system, and tend to produce irregularities in the circulation. Hence those who escape the disease about the age of puberty, when the arterial system becomes less energetic, are not usually attacked until the influence of age enfeebles the vascular system. The influence of the hot, low and damp climate of Bengal, and the unhealthy food and bad water used by the natives, act powerfully in impairing health, and thus predisposing to attacks of this disease:—the frequency of which is explained, by the lax state and important offices of the skin in tropical climates; the debilitated state of the

body of the Hindoo, especially when increased by losses of blood, &c. (Hillary); previous and long continued diseases; and the slowness of the circulation, which predisposes the veins to inflammation, more particularly those which return the blood from the more depending parts of the body, as of the legs, scrotum, &c.

When so predisposed, the Hindoos are frequently exposed to great vicissitudes of temperature, more especially towards the end of the rains and during the cold months, which act as the *exciting cause*. During the rainy season the nights are frequently calm and moist, and feel excessively sultry; so as to induce the natives to leave their houses, which have seldom any aperture but the door to allow the entrance of fresh air, to sleep upon the damp ground or in an open verandah. Then a single thin cotton cloth forms their only defence from the emanations from the ground, and cold unhealthy night dew. At these seasons of the year, the wind often changes suddenly its direction, and is accompanied with rain, which sometimes, in a short time, depresses the mercury 20°; and blows over persons so exposed, with the skin relaxed, and covered with perspiration. In other cases, the fatigued and heated body of the Hindoos is chilled by bathing, and retaining the wet cotton covering on their loins in returning to their homes, often at considerable distances; which produces a rapid evaporation, and consequently a considerable degree of cold. In other

cases the disease would appear to be produced by having the feet long immersed in water when the body is exposed to the great heat of the sun ; as in preparing the rice fields, transplanting the rice plant, working in wet mud for building houses, &c.

The limited knowledge of the ancients led them to suppose, that Elephantiasis was only found in the low and humid parts of Egypt, in which situations they had only seen it : Lucretius thus expresses this opinion.

" Est Elephas morbus, qui propter flumina Nili gignitur Ægypto, in Medea, neg : præterea usquam."

More modern authors have fallen into a like error, from the same limited information on the subject, and frequency with which they have met with Elephantiasis in particular districts. At one time it was supposed to be a peculiar and endemic disease of the island of Barbadoes*, but more extensive research proves that the natives of the other West Indian Islands are likewise subject to its attacks†.

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* See Dr. Hendy's Treatise on Elephantiasis, p. 89.

† Thomas's Practice of Physic, Ed. 8th. p. 682. Med. Chirurg. Trans. vol. vi. p. 73.

The influence of climate in producing Elephantiasis is strikingly marked in Bengal; as it is rarely seen among Europeans until after a long residence in the country. The descendants of Portuguese are frequently subject to Elephantiasis; and among their lower orders, it is very frequently seen in the most aggravated forms. Females are peculiarly liable to the disease; I have lately been consulted in three females of European extraction with this disease, which occurred in paroxysms, in the same manner as among the natives. In another case, I attended a boy, the son of an European by a half-caste mother, who had five previous severe paroxysms of Elephantiasis. In the attack I saw him labouring under, the right foot and leg was considerably swollen, and had a red erysipelatous blush on its surface. The permanent swelling yielded to a course of medicines, assisted by frictions, bandaging, &c.; and for a number of months, the attacks were kept off by attention to his bodily health, and avoiding the local exposure of the affected part. He then left Chinsurah, and I have not since heard of him.

Elephantiasis is not, however, confined to tropical climates, but where the individual is exposed to the predisposing and exciting causes, it may occur in all climates. I have seen an aggravated case of it in England, and another in Scotland; in both of which it followed the usual course.

We may therefore conclude that Elephantiasis may occur in every clime, although it is more frequently found amongst those who inhabit low, damp, unhealthy situations in tropical climates, which impairs the health, and thus predisposes to the attacks of the disease. As the poor are most exposed to these causes, it is more frequently seen amongst them, and generally occurs after exposure to atmospherical vicissitudes, when the system is weakened by fatigue, unhealthy diet, &c.; and from want of care, it assumes in them, the most aggravated forms, especially in old age, when the venous is so much more developed than the arterial system of vessels.

The epidemic occurrence of Elephantiasis has led some to suppose the disease not only contagious, but likewise hereditary; this opinion has been strengthened by confounding it with the tuberculated Leprosy, which seems to be both contagious and hereditary: but I have never been able to obtain any evidence of Elephantiasis being so, and the reason of its being endemic in certain countries seems to be more satisfactorily explained, by the natives being more predisposed in such situations, and more frequently exposed to the exciting causes; which, acting on a number of individuals, explains its frequency in these situations. The preceding remarks on the appearance and nature of Elephantiasis, will be rendered more evident after examining the opinions of authors, and comparing them with such remarks

of my own as I have to offer on this curious, and important subject.

In the medical works of different ages and schools, there are always to be found speculators on the nature of disease which, when sanctioned by celebrated names, have been generally received and considered as axioms which are to point out the course, and define the limits, of research; without having been examined with that care and proved by that experience which such difficult, and imperfectly known subjects require.

This natural desire to explain every point of obscurity by the exercise of fancy has been the cause of much loose and unsatisfactory reasoning in medical writings; in which we vainly look for observations on the causes which produce disease, the nature of their invasion, their course and termination; and in its stead we find they generally confine their researches to the explanation of the effect produced by the disease on the part affected.

The history of Elephantiasis affords convincing proofs of this fact. The early writers generally confounded the disease with others. Thus Sauvage, Vogel, Sagar, and Cullen call the tuberculated Leprosy, Elephantiasis; and Vogel calls the large leg Elephantiæ Arabum, which he defines "Eadem duntaxat in pede valde tumido et duro.' More modern, and better informed authors, such

as Town, Hillary, &c. explained the formation of this monstrous leg by the morbid matter of the fever, which by an erroneous application of a law of gravitation, was supposed to be gradually deposited on the leg, by an imperfect crisis of each paroxysm of this peculiar fever. The Arabian authors explain it by the black unhealthy blood falling down into the legs, and then producing the peculiar symptoms of the disease. Such opinions, the result of an improper application of the Humoral Pathology, are now properly rejected.

At a later date, the difference among physiologists concerning the important offices of the absorbents, led to another and more natural explanation of Elephantiasis : but by considering the lymphatics as the only absorbents, other errors seem to have been committed. Since the time that Erasistratus discovered the lacteals, and Aselius, Pequet, Bartholius confirmed their nature and course ; the labours of the Hunters, the Munroes, and the Mickles; of Hewson, Cruckshank and Masgani have added much to our knowledge of their extent, and have thrown such an importance around them, that they have generally been considered as alone performing the offices of absorbents. In proportion to the supposed importance of their functions, has the variety and importance of lymphatic diseases extended ; until one of the first anatomists* of the age has enume-

* See Soemmering's Work, de Morbis Vasorum Absorbentium, 1795.

rated a large proportion of the diseases of nosologists under this head.

The accumulation of facts by late pathologists have reduced the list of these diseases; and since the pathology of the venous system is receiving its due attention, it is probable the list will be still further reduced, as the discoveries of Magendie, Foeman and Louth have led these philosophers to the conclusion, that the lymphatics are only appendages to the venous system, the great difference between them being, in the respective fluids they convey, and a certain power of selection in the fluids they absorb. In examining the reasons assigned for supposing the lymphatics the vessels diseased in Elephantiasis, it appears to have arisen from the hard and painful cord, which extends from the groin along the anterior and inner part of the thigh; from a red blush of inflammation frequently extending along this course; and from the neighbouring glands being *sometimes* enlarged. But when the lymphatics and glands are the parts primarily inflamed, do we find them followed by such consequences as we see in Elephantiasis? Does the inflammation and swelling of the whole leg take place so shortly after inflammation of lymphatic vessels of the part? Is it not much more natural to suppose, that if lymphatics are sometimes inflamed in cases of Elephantiasis, that it is produced by the same exciting causes acting upon them, rather than that this peculiar disease is produced

by these variable symptoms; and can the examples of Elephantiasis attacking the arm, scalp, neck, &c. be supposed to proceed from glandular inflammation?

When the lymphatics are irritated by wounds, the absorption of morbid secretions, &c. it produces an inflammation of the lymphatics leading from the part; an irregular cord-like substance is produced, and a red blush appears along the course of the vessel; and a swelling of the glands through which the diseased vessel passes, with more or less feverish symptoms. These are the symptoms of inflamed lymphatics; but they want the most characteristic signs of Elephantiasis; and instead of terminating like this, in large hard swellings of the member, are followed in some cases by adhesion, and in others by suppuration, or thickening of the diseased vessels and glands.

Other symptons have been alleged as proving the lymphatic system the part affected; thus the great size of these vessels, as found on dissection of parts affected with Elephantiasis: but experience has proved to me that such a state of these vessels will generally be found in cases of large collections of serum in the part. Nor are the supposed enfeebled state of the coats of the lymphatics, so as to be easily ruptured by injections, a proof of previous inflammation of these vessels, which, on the contrary, always leaves them thicker and stronger than natural. The species of dropsy

by extravasation from the rupture of these vessels is very questionable, unless in cases where such ruptures may be produced, and in some very rare cases, by external violence.

I have endeavoured to avail myself of opportunities of examining Elephantiasis in its different stages, but especially in its primary invasion, and am confirmed in my opinion*, that Elephantiasis is produced by an inflammation of veins. When so affected, a consolidation of blood takes place in the trunks, which extends to the smaller branches, and impedes the circulation in the part. The increased action of the arteries sends more blood to the part, increases secretion, and enlarges the anastamosing branches, and capillary veins, which produces the red blush; and, as the capillary arteries participate in the obstruction, the fluid they secrete into the cellular tissue of the part is increased, which swells it at the most depending position, especially where there is much cellular tissue, from whence the obstructed veins arise. This impeded circulation weakens absorption, which may be observed by the swelling along the course of the superficial veins so obstructed, and in the neighbouring cellular tissue.

The nature of the secretion varies with the state of the patient's constitution, the degree of inflam-

* See Essay on Phlebitis.

mation, and extent of the veins inflamed. When acute, the action of the neighbouring arteries is much increased; in which state the blood of the part contains more crassamentum, the secretion quickly consolidates, and the swelling is hard, as in the severe local inflammation producing phlegmon; and in some cases of Elephantiasis, this local inflammation is so severe as to terminate in partial suppuration. For a like reason lymph discharged from a recently blistered surface is at first coagulated by exposure to the air; after some time, by the diminution of the inflammation, it is only coagulable by the application of heat; and at last, the discharge is entirely watery, as the effect of the irritation diminishes*. When the blood is examined in such an inflamed part, it is found to contain more crassamentum, and the secretions more of the coagulating principle, which Blackal pointed out as an important criterion of the efficacy of bleeding in Dropsy. The second cause which modifies the nature of the swelling is the extent of the disease. Should the principal superficial veins of an extremity be extensively inflamed, as is often the case in Elephantiasis, and the habit of body weak, the size of the swelling will be considerable and of a soft feel, so as to pit on pressure, from the effusion being of serum, which is displaced by pressure, but resumes its place in those cells of the tissue from which it had been pressed out.

* Hewson's Enquiry regarding Lymph, page 120.

When the effusion is so great as to burst the skin in the acute stage of Elephantiasis, the lymph generally coagulates. As the acute symptoms disappear, the arterial action is diminished, and the absorbents become more active, and remove the more liquid part of the swelling; but they are left in too weak a state to remove that, which the arteries deposited during their diseased action, and the part is left enlarged and hard. By the repetition of inflammatory attacks, more serum and coagulated lymph is diffused into the cellular tissue, so as permanently to thicken the reticular covering of the part, and the member thus enlarges by slow degrees into the hideous deformity named Elephantiasis.

This predisposition to Phlebitis from the position of the veins, is rendered less dangerous than when the veins are inflamed from a wound or an acute cause in a bad habit of body, and in a vessel near the heart. In Elephantiasis the inflammation of the veins generally terminates after perspiration, in resolution, when most of the vessels are left pervious. In more severe cases some of the veins are obliterated, and the absorbents are weakened so that the part is predisposed to other attacks of inflammation, especially on exposure to the exciting causes. The veins most commonly affected are the saphenæ, and other veins of the legs, as also those of the pudenda and of the scrotum; on account of their exposed situation and course. From these parts it frequently extends to other venous trunks of the limb by which

the circulation of the extremity is often impeded, producing the peculiar and aggravated symptoms of the disease. In some individuals, the inflammation affects the veins arising from the scrotum or the labia pudendi, which explains the peculiar affection of these parts.

After each paroxysm of Elephantiasis the veins of the part become more deeply affected, the circulation is left languid, and the part is subject to relapses, until the disproportion between the functions of the secreting and absorbing vessels is such, that the local attacks of inflammation become weaker and the intervals longer. The swelling, however, remains defined by the extent of the veins affected, so that the swelling in the scrotum is often found of a great size in one side, while the other, which is actually defined by the raphè, remains of the natural size; as the veins of the one side arise from that on which they terminate in large trunks.

The veins are sometimes inflamed in other parts of the body, from their exposure to the predisposing and exciting causes; on this account the epigastric region is sometimes the seat of the disease, which extends in some cases to the thorax, while in others the arms or head are affected.

The deep veins are in some cases inflamed, so that the swelling is not confined to the cutaneous cellular tissue, but extends to neighbouring organs.

In this manner the testicle often participates in old and extensive swellings of the scrotum.

Such an extensive disease in the veins of a part must necessarily affect the lymphatics which have such an intimate connection with them, and explains the inflamed and swelled state in which the glands in the groin are sometimes found in this disease.

The skin being supplied by the affected vessels, explains the redness which is succeeded by desquamation of the cuticle; and the skin and neighbouring parts become slowly hardened and tuberculated, and terminate in an appearance like Ichthiosis. The feverish symptoms are produced in this disease by the influence of an acute local disease, which acts on the already predisposed system, and from the derangement of the circulation and quantity of blood sent to the internal organs with the local disease, explains the shivering, which by sympathy with the stomach produces the sickness and vomiting. When the re-action of the system takes place, it produces the hot and sweating stages, which are accompanied with thirst, from the copious secretion into the cellular tissue, and free cuticular discharge.

If we carefully follow the course of a paroxysm of Elephantiasis, and compare it with an attack of Erysipelas phlegmonoides, the resemblance of the two diseases is striking; particularly when allowance is made for certain modifications, which

must be more readily allowed when the difference of the temperament, &c. of those liable to their attacks, are considered. Both diseases are produced by the same exciting causes ; as exposure to the sun ; impressions of cold damp air, when predisposed by an irritable habit of body ; sedentary pursuits, in individuals who live in confined air and unhealthy situations. The attack is ushered in by shivering, and an uneasy feverish sensation with listliness ; the affected part has a bright redness on its surface, which disappears on pressure being applied to it, and quickly returns on its being removed ; and this redness has a great tendency to spread. The trunks of veins of the affected part enlarge and become tortuous, and the patient complains of a burning, and tingling pain, which on the second or third day is accompanied with a general undefined shining swelling and tension of the part, which pits with difficulty. The attack is accompanied in both diseases with listliness, shivering and uneasy feverish sensations over the body. The pulse is full, quick, and hard ; the skin and tongue dry ; with nausea, vomiting and great thirst. Any part of the body may be the seat of the disease ; but the extremities, particularly the inferior, are more liable to these attacks of inflammation, from their being more exposed to the predisposing and exciting causes.

There would be some difficulty in deciding whether the following cases were attacks of Elephantiasis, Erysipelas phlegmonoides, or Phleg

masea-dolens, and seem to prove that they are only modifications of the same disease, produced by an inflammation of the veins.

A strong healthy lady, aged 40, has been residing in a low damp house during a very unhealthy season of the year; has been very inattentive to her bowels, which are habitually costive, probably from the want of her accustomed exercise. She is now in the eighth month of uterogestation of her tenth child. On the 19th August, 1832, she felt feverish; had a disagreeable bitter taste in her mouth; became sick, and vomited a large quantity of bile; accompanied with severe pain in her left thigh, which extended from the groin downwards and inwards, along the course of the femoral vessels. She passed a restless uncomfortable night, and continued feverish and thirsty the following day, when her leg swelled above the ankle, and had a shining erysipilatous redness. I saw her in the afternoon, and found a considerable hardness, swelling, and shining redness from above the ankle to half way up the leg, and a swelling in the groin, which extended along the femoral vessels, which were painful and tender to the touch, but without any redness along their course. Her skin is hot and dry; complains of severe head-ache; has a loaded brown tongue, and disagreeable bitter taste in her mouth, with much thirst. No appetite; bowels have been costive; pulse 96.

20th. Passed a restless night; bowels have been once freely affected; the swelling of the leg rather increased, but hardness and vivid redness considerably diminished: complains much of pain in the leg and thigh, which she cannot put to the ground. Red patches appear over the course of the vessels of the thigh, which towards evening increased to a red streak, which is very tender upon pressure being made along its course. Slight return of the head-ache; mouth lost the disagreeable taste; tongue cleaner; much thirst; pulse 100.

21st. Has passed a restless night. The redness, pain, and tenderness of the thigh, has been much diminished by the application of leeches, but she still complains of pain in the groin, without any apparent enlargement of the inguinal glands; fever diminished; bowels moved twice; thirst much diminished; some appetite. The redness and swelling of the leg is more diffuse, and continues soft.

22nd. Passed another bad night, swelling and pain much diminished, and redness less vivid. In the evening she was much better in every respect.

23d. The pain was much less severe in the night, during which she slept comfortably. The leg to-day is still tender when pressed upon; but this is not felt in the course of the vessels of the thigh, along which there is now neither swelling nor redness. The leg, however, is more swelled than before, and has now a white shining elastic appearance, which extends from the foot to the knee, and resembles the swelling of phlegmasia dolens. Skin natural; bowels twice moved with medicine which she takes daily; appetite much improved.

25th. The acute inflammation has quite disappeared; the swelling, is diminishing, but slowly.

30th. For several days past she has been quite well; the fever, pain, and insensibility having disappeared; but unfortunately she did not remain at rest with her leg in a horizontal position; and in consequence of walking about yesterday, it began to feel painful towards night; fever supervened, and she had no sleep at night. To-day the leg around the ankle is considerably swelled and painful, with a red blush on the surface. She complains of the pain extending along the inner-side of the thigh, particularly in the groin, which is tender, but without redness or swelling.

10th September. The fever, pain, and redness have disappeared, and the swelling much diminished; feels well.

The remedies employed in this case were repeated application of leeches along the course of the femoral vessels, and inflamed leg, which was kept in a horizontal position; frictions with camphorated anodyne liniment; fomentations, and poultices. Laxatives and sudorifics were repeatedly exhibited, and spare diet enjoined.

She was delivered of a healthy child at the full period, and for sometime after, had a severe attack of remittent fever, with enlargement of the spleen, but without any return of inflammation in the leg for some months after the acute attack, when she went to reside in another part of the country.

The following may be considered as an example of phlegmonous erysipelas, or elephantiasis, occurring in a person of a plethoric habit of body.

Thomas Barnes, aged 50, a strong man, by trade a shoemaker: enjoyed good health until eight months previous to admittance into hospital, when he observed that his left leg and foot were swelled, but without pain; it continued to increase for some days, when he had a severe shivering fit, followed by great heat over his whole body, particularly in the left leg, which was very sensible, and of a scarlet colour. He was confined to bed for several weeks in this state, when the symptoms of inflammation disappeared, but the foot and leg remained swelled. He had five or six similar attacks of inflammation in the leg, and fever, during which the swelling increased, which from the severe pricking pain in the inflamed part, obliged him each time to remain in bed, owing to the increasing of the swelling, when he endeavoured to put it to the ground.

When he came into hospital, the left leg and foot were twice their natural size, very hard, somewhat sensible, and of a florid colour, with a shining desquamating appearance over the swelled part. These appearances were most evident from the inner ankle, to about the middle of the leg, but they afterwards

extended above the knee. All the symptoms diminished by keeping the leg in the horizontal position. But he only obtained partial relief from the antiphlogistic remedies employed.

APPENDIX.

The following is an example of elephantiasis as it occurs in Europe.

A young woman, having, on the day her menses began to flow, taken imprudently, whilst hot, a draught of cold water, the discharge immediately stopped; and she was seized with shiverings, followed by fever and pains all over the body. After two or three weeks, the fits of shivering succeeded by fever, *frequently* returned; and at those times the inflammation of the legs increased. In about a year, the lower extremities had attained an enormous size; but the swelling was not now attended with inflammation; on the contrary, the limbs were cold and hard. It differed also from œdema, as it did not retain the impression of the finger; nor was sensibly increased towards evening. In every other respect, excepting a diminution of the catamenia, the patient seemed to be in perfect health. Her limbs remained for two years and a half, in the same state. She then began to rub on her legs the mild mercurial ointment, gradually increasing the quantity to half, and afterwards to a drachm daily; she lived low, and the limbs were kept in a horizontal position. In three weeks, the swelling subsided, the legs being soft and flaccid, and in three months, the skin was so loose, that it seemed probable, that what had formerly distended it, was now mostly absorbed. The mouth was not affected; the bowels not in the least. During the cure, she perspired much, and made water in considerable quantities*.

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* In Dr. Stark's Works, p. 64.

The periodic return of erysipelas sometimes occurs in the same manner as elephantiasis. In chlorotic women, says Hoffman, the erysipelatous attack is occasionally made every month, just at the period when the menses should take place. Larrey knew two male patients, one of whom used to be attacked with erysipelas twice a year at the time of the equinox, the other had only one attack annually, which was wont to happen in the beginning of the spring. "My friend, Mr. Mard of Southampton," says Mr. Cooper in his excellent Dictionary of Surgery, "lately informed me of an erysipelas, which was both periodical and universal, affecting a lady several times at intervals of two years."

The appearance of the parts affected with elephantiasis is little known, as pathologists have few opportunities of dissecting them, from the disease being slow in its progress, and not dangerous in its result. When such opportunities occur, it is,usually,when the parts have arrived at a great size, when the acute symptoms are absent, and the different tissues affected are so much altered, that it becomes very difficult to distinguish the original cause from its consequences. Such a complication in the morbid parts has a tendency to lead the theorist into error; as the disorganization of parts affords him an opportunity of adding what he may require to explain that which may be found erroneous.

When the diseased part is examined, at an early stage, during the continuance of a paroxysm, the hard varicose appearance of the veins indicates their being inflamed, with the consequent consolidation of their contents.

The length of time the disease has continued will modify the degree and extent of the thickening and degeneration of the skin, and the quantity of serum and solid secretion in the subcutaneous cellular tissue. In all such cases, however, the veins at their extremities will appear larger, and more numerous, than usual; and from their connection with the lymphatic system, these vessels will appear, as in all dropsical cases, more developed than usual, and the glands enlarged. In a case dissected by Dr. Hendy, the lymphatic vessels of the upper part of the foot were much increased in size, so that those ramifying on the top of the foot were the size of a large quill, as well as those on the inner ankle. When injected, they appeared much distended, and burst on being filled with mercury. The deep lymphatics, and those which followed the course of the tibial artery, were nearly natural, and the lymphatic glands were pale, flaccid, and covered with a gelatinous fluid. These appearances of the lymphatics are such as will generally be found when dropsical parts are examined, but they do not explain the occurrence of acute local inflammation. In the same case, Dr. Hendy found the small veins thrice their natural size, and the smaller arteries were

likewise distended, but the larger trunks were nearly of their ordinary size*. Dr. Hillary† gives the following as the state in which he found the blood vessels, in a case in which he dissected a part affectedwith elephantiasis. The blood vessels of the skin were much enlarged in size. The coats of both veins and arteries were very considerably enlarged, so that, such as were naturally very small branches of the artery, were here pretty large vessels ; insomuch, that when he amputated the leg, he was obliged to take up no fewer than 12 branches of arteries (?) with his needle, although the leg was taken off above the knee, and the swelling (in which the vessels were much more distended) reached no higher than the patella, so that the vessels were distended even in the thigh, where no swelling appeared. The femoral artery, where it was divided, was very large. Such appearances seem to be owing to the repeated attacks of inflammation, affecting particularly the veins, which are thus left thickened, tortuous, and of a larger size than natural; and the great swelling to the repeated accumulations of serum, with a larger quantity of albumen in proportion to the acute nature of the attack, and frequency with which it had occurred. When the inflammation is not present, a large quantity of serum will be found, which in some cases will coagulate into a jelly when exposed to the air, as in the case related by Dr. Hendy‡.

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* l. c. p. 136. † l. c. p. 309. ‡ l. c. p. 136.

I have had an opportunity, through the kindness of my friend Mr. Twining, of examining a leg affected with elephantiasis, which had been amputated. The limb was much swelled and deformed, and the foot distended, with a very large tumour extending immediately above the ankle-joint. The skin was rough and hard, especially where the swelling was most prominent; and a part of this rough integument had exactly the appearance of ichthyosis. On dividing the integuments, they were found unusually hard, and the subcutaneous cellular tissue much increased in thickness, and condensed in structure. A quantity of transparent liquid serum followed the course of the knife, which divided it with some difficulty. After several incisions had been made, about a pint of fluid was found to have run out, and much more could be pressed out from the cellular tissue. When I saw the leg next day, it was much reduced in size, from the quantity of serum evacuated, and more continued to flow from each fresh incision. On dividing the largest portion of one of these tumors to the bone, the general state of the tissues was seen. The muscles were large, round, and red, like those of a healthy, strong individual; above these, the cellular tissue and adipose membrane contained a considerable quantity of hard, elastic fat, mixed with lax thickened cellular tissue, which made up the principal part of the tumor, and did not extend into the interstices between the muscles. Under the integuments, the corion was about half an inch thick,

very dense, and appeared like cartilage; above which, was the loose, rough, scaly, and thickened cutis, with its papillæ much enlarged, and elongated into roundish or oblong tumors, over which a dark-coloured, rough, horny cuticle grew. In other parts the cuticle had nearly its natural appearance, and the nails were unchanged.

The vessels were next carefully examined. The arteries were smaller than natural, and the veins thickened in their tunics, with numerous enlarged branches. The lymphatic vessels were empty, and appeared healthy, but their glands were somewhat enlarged, hard, and red.

In the scrotum and arm, from the irritation being less severe and long continued, the cuticle is not so dry, scaly, or horny; nor is it increased in thickness.

The above opinion regarding the nature of Elephantiasis has been of use, by pointing out what appears to me the best means to be employed in our endeavours to prevent as well as cure this frightful disease.

The preventive means, however, would require a system of living which the poor Hindoo has neither the energy nor means to put in force; and when labouring under it, his occupations, his lassitude, and predestinarian opinions prevent him having recourse to the means of preventing the

inflammatory attacks, and removing a swelling which does not much incommode him; particularly when he supposes it purifies his body from vitiated humors, and renders any means to cure it dangerous.

For these reasons the disease is generally allowed to take its natural course in the natives, until the degeneration of the skin, the extensive disease of the vessels, and the great swelling of the cellular tissue, with the occurrence of sores, prevent him following his occupations, and makes him anxious to have the disease removed. In such a state of disease a long systematic plan of treatment is required, which even, if most successful, requires attention which a native has rarely the perseverance to pursue. When the scrotum is affected, it involves other organs which are of greater value to him; on which account I have found them much more tractable and persevering than they otherwise would be.

The indication of prevention and cure of elephantiasis is the avoidance of the influence of the predisposing, and guarding against the effects of the exciting, causes.

When the disease is seen during the acute stage, the treatment should be commenced by the exhibition of an emetic, followed by diaphoretics and purgatives, combined with anodyne medicines, when the irritation is severe, and a strict obser-

vance of the antiphlogistic regimen. Should the person be seen in the cold stage, and is plethoric, and the fever high, venesection is to be employed to an extent varying with the case; but in native patients most reliance is to be placed on the application of leeches along the course of the inflamed veins, followed by the application of heat combined with moisture. Scarifications made in the inflamed part will often be found of great use by unloading the diseased vessels, evacuating part of the morbid secretion, and restoring the balance of the circulation, and thus assisting nature in the removal of the swelling. The steam-bath to the leg, or fomentations or poultice to the scrotum, with which opium may be added with great advantage for diminishing the pain and inflammation. For the same reason blisters along the course of the inflamed veins will be of great use, by diminishing the cause of the swelling, and thus aiding powerfully in arresting the disease.

Between the attacks of fever means should be employed to remove the swelling, and prevent a recurrence of the attack.

The advantage to be derived from the topical evacuation of the serum is exemplified in the case related by Dr. Hendy (Case 22, p. 132), in which the scrotum burst, during a severe paroxysm. Six or eight ounces being received into a bason, it was somewhat discoloured with blood. When examined an hour after, it was found that the

whole had coagulated, and had a milky appearance, intermixed with the discoloured livid fluid, which had also coagulated. A few months after this the patient had another attack, attended with a similar discharge from the scrotum; in consequence of which the part was nearly reduced to its natural size. He has not since had any return of the disease. I have seen several examples of the same natural evacuation by the bursting of the swelling during a paroxysm, which mitigated the symptoms, and for a time seemed to arrest the progress of the disease. But when the sore dried up, the fever recurred as before. In the plan of treatment which I followed, I always found great advantage from keeping up a sore over the diseased vessels, to act as a counter-irritant, as well as to drain off the large quantity of secreted fluid. This may be accomplished by keeping open blisters, seatons, or issues. The latter I have generally employed, from its being less dreaded than the seatons, and being more certain and permanent than blisters. While their discharges are thus promoted, the absorption of the swelling is to be assisted by the horizontal position, by continued frictions, graduated pressure by means of sticking plaster and rollers; and the general health promoted by living in a dry, equable climate, eating nourishing and easily-digested food, and the bowels kept open by means of mercurial aperients and laxatives, combined with some diuretic and diaphoretic medicine. Advantage will also be derived

from the employment of sulphureous mineral water, externally and internally; diet-drink and bark; and sulphureous fumigation and douches.

As the influence of the above plan of treatment is best marked in the cases of elephantiasis of the scrotum, which are more commonly seen in an early stage, and the patients more persevering in the employment of remedies; I shall add two cases of this kind.

Elephantiasis attacking the scrotum, phlebitis Fever.

A Brahman of the lower class, (whose time was employed in visiting religious families and temples, whereby he was frequently exposed to inclement weather, and used bad food,) had an enlarged scrotum, which commenced 20 years before I saw him. He said he had had fever once and sometimes twice every month, at which times the part was red and painful. It increased from year to year, and as it enlarged the recurrence of the fever was less frequent and severe. In a late attack, the swelling increased very much in size, and pointed at the inferior and posterior part, and a large quantity of thin fœtid pus mixed with blood was discharged. The tumor diminished considerably, but he still complained of inconvenience from its size, which appeared evidently to have been produced by the collection of coagulated serum in the cellular substance of the scrotum and tunica vaginalis.

The following notes were taken when examined during the presence of the feverish symptoms :

The testicle of the left side can be felt surrounded by a large soft mass, extending over the scrotum, which is distended to the size of a large adult's head. The part affected is soft and yielding, from the quantity of fluid in the cellular membrane of the scrotum, but especially in the tunica vaginalis of the right side. The skin is thickened, and there is an indentation at the root of each hair. Since last night, he has had fever, which commenced with a shivering fit : the scrotum is swelled, very painful, and has a red blush over its surface. Some swelling extends over the hypogastric region, which is soft and œdematous. On carefully examining the state of the inguinal glands, I find they are of the usual size, and have no unnatural sensibility. The veins of the cord cannot be distinctly felt, on account of the swelling and sensibility of the parts, on the right side ; but on the left, a distinct cord-like feel, accompanied with sensibility, is well marked. The veins on the inside of the thigh are distended with blood, have the feeling of cords to the finger, and are very sensible. Those of the feet are distended with liquid blood, which can be emptied. His skin is hot and dry ; pulse 116, small, and hard ; tongue brown, loaded in the middle, and red at the edges; great thirst ; no appetite ; bowels

open four times yesterday, and once during last night. Feels very weak and languid

He has not been affected with this fever for some time past, and believes that exposure to cold and damp weather is the cause of the present attack.

24th May, 1831. This Brahman again called for advice about his scrotum, which now extends to near his knee, measuring 10 inches in length and 29½ in circumference. He says he has had only one feverish attack since last October. The large mass has a peculiar black and rough appearance, and a soft elastic feel like a piece of caoutchouc. It felt cold, and was insensible. Applied the nitrate of silver to four points one over each cord, and once near the lower part of each side of the scrotum; administered a purge.

The sores have been kept open until to-day (9th June); but are now nearly dried up. Another issue to be made; a blue pill every second night. His general health much improved; and he is in high spirits as to the result. No return of fever. The extreme length of the tumor is now eight inches; circumference 15½ inches.

20th June. Length of the swelling the same; circumference 13 inches; the scrotum is very much diminished in size, having lost the rounded ap-

pearance. Skin still tough and thick; sore nearly healed up; no fever. Camphorated ointment to be rubbed on the scrotum twice a day, and occasional purgatives given; supporting the scrotum well; mouth slightly affected. Is in great hopes a cure will be accomplished.

21st July. Had a slight feverish attack yesterday, probably from some imprudence; his tongue is coated, and he has no appetite. The diminution of the scrotum proceeds; it is now 11½ inches in circumference; the sore is nearly healed; another is to be formed, and a purgative is to be given, and repeated as required.

12th August. Has had no return of fever, although the weather has been very damp and unhealthy; tumor 11 inches in circumference; sore on the inferior part very indolent and almost insensible, from which some pus is discharged. Ordered eight drops of the tincture of iodine, which he says produced an uneasy diziness of the head, and fearing I would insist on his taking it, he did not return for nearly a month. I then found he had recovered from a severe attack of fever, with inflammation in the scrotum. Its circumference is now about 12 inches. He requested some purgative medicine to take occasionally, as he says he derives much benefit from its use. He did not return as directed, and the permanent benefit which care and perseverance might have produced was not obtained.

20th October. He again came in consequence of an attack of the fever which commenced to-day, with considerable burning pain over the enlarged right side of the scrotum, which felt hot, and is much larger than when I last saw him. This increase in the size of the right side took place since the fever commenced, and has an uniform soft yielding feel, while the left side of the scrotum remains small and prominent, at the upper part of the large swelling, where the healthy testicle is distinctly felt. The inguinal glands on both sides are of the natural size, and are not sensible on pressure; but on stretching the skin on the right side, large veins of a harder feeling than natural are found extending from the side of the swelling towards the thigh. The cord is swelled and sensible to pressure, skin hot, pulse 110, and he has no appetite. Small doses of calomel with antimony three times a day, and a purge in the morning.

21st. Much better; fever diminishing.

Has not returned.

Elephantiasis of the Scrotum.

A strong and healthy Sircar, named Ramkur Ghose, has had a large swelling of his scrotum for the last 10 or 12 years. He says he was first attacked with pain in the back of his head, and back: accompanied with despondency, weakness, heat, thirst, and a hard enlargement, pain, and redness

of the cord and scrotum, which has been gradually increasing after each attack of fever. I saw him several times in September, 1830, when the following notes were taken.

In this case one side of the scrotum is particularly affected: it is of irregular shape, about the size of a child's head; and has a peculiar elastic hardness, coldness, and insensibility. The fever recurs twice a month, attended with pain and redness of the part.

On the 17th September (new moon) this person presented himself with the feverish symptoms, which had developed themselves the evening before; pain and swelling along the spermatic cord, and enlargement of the scrotum. Next day all the symptoms were aggravated. The third and following days the distressing symptoms disappeared, and he returned to his usual occupations.

I cannot detect any enlargement of the inguinal glands. The spermatic cord is swelled, and tender; there are several varicose veins on the scrotum, both sides of which are much enlarged by a sero-gelatinous effusion into the cellular substance, and serous coats of the scrotum. Two issues have been formed, one over each external ring, and another about the centre of the left side of the scrotum. This was afterwards punctured with a lancet, and pus and serum continue to be discharged. The

swelling of the scrotum has rapidly diminished, and to-day (24th May, 1831), is nearly of the natural size. On the left side, the testicle adheres to the posterior and upper part of the scrotum, and is somewhat larger than natural. The other testicle is quite natural.

Insert peas to keep open the issues; let the scrotum be suspended in a bandage, and give occasional purgatives.

Such a rapid improvement cannot be expected to be permanent, as the predisposition remains in the part, which will probably be excited into action by continual exposure to the exciting causes; but it proves what may be done, and the ultimate cure that might be obtained by a persevering use of purgatives, issues, local frictions, and the careful avoidance of the influence of the weather, particularly when combined with local application of cold and moisture.

14th June. To-day the left testicle is a little enlarged. The right remains of the natural size. The scrotum is flabby, and the subcuticular cellular tissue is a little thickened. The sores have all healed up. Occasional blue pill and gentle laxatives as required; frictions with camphor ointment: the bandage to be continued.

4th July. Continues well; left testicle still a little enlarged and hardened.

27th January. Continues well ; the left testicle a little enlarged and soft ; the scrotum very flaccid, without any appearance of swelling or thickening of the parts. There is a slight tendency to pain on taking any violent exercise, or committing any excess, more especially about the change of the moon.

The local nature of this great deformity has induced surgeons to amputate the part ; and although I have seen it done with success, it is only in rare cases it ought to be had recourse to, as there are cases on record in which it was followed by a recurrence of the disease in other parts of the body, and in such an aggravated form as to endanger the life of the patient. Dr. Hendy's opinion, that it* invariably attacks some other part of the body when amputation has been had recourse to, seems to me to be much too general an assertion ; but the fatal result of such an operation, related by him†, should make the surgeon hesitate before he has recourse to the knife, unless under peculiar circumstances.

Hoogly, 1st Dec. 1833.

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* b. c. p. 17. † p. 136.

NOTES

ON

A NEW INJECTION

FOR THE CURE OF HYDROCELE.

By J. R. MARTIN, Esq.

Presented April 5, 1834.

Hydrocele is a very common disease amongst the natives of lower Bengal. Arising apparently from the universality of unrestrained gonorrhœa, with its consequences, in constitutions rendered liable to serous effusions, by the general prevalence of intermittent fevers, and their sequelæ, visceral enlargements, more especially those of the spleen.

By reference to the annexed table, it will be seen, that, in addition to numbers who would not submit to operation, ninety-five cases have been treated in the native hospital, since March, 1832.

Sir Astley Cooper, speaking of the great advantages of the now general operation for the cure of hydrocele, says, " For the operation of injection,

we are indebted to Sir James Earle; and those who are old enough to remember the contrariety of opinion on the treatment of hydrocele, Mr. Pott advocating seton, Mr. Else, caustic, and Mr. Hunter, incision, well know how to appreciate the proposal of Sir James Earle, and must be aware how much our profession and mankind are indebted to him for his suggestion."

That all the former operations were severe, beyond what such a disease warranted, will be admitted by every reflecting surgeon; and that some of them were barbarous and fatal is equally certain.

Of the operation of excision of the tunica vaginalis, Sir A. Cooper speaks, as having witnessed two or three times; but he concludes by expressing his hope, that he may *never do so again.* No doubt the operation by a stimulating injection, as first introduced by Sir James Earle, was a great improvement on all former modes; but that even it has always been safe,—and that in the hands of the best surgeons, has been disproved every year during the last thirty,—both in England, the continents of Europe and America, whose periodicals afford ample testimony to its repeatedly fatal consequences. Sir Charles Bell relates that, while accompanying a "celebrated surgeon" to the house of a patient to be operated on for hydrocele, he took occasion to remark on the danger of the fluid getting into the cellular substance, and the

frequency with which it happened, even in the hands of "dexterous surgeons." The gentleman to operate said, that he could not conceive how it should happen, and that he had performed the operation thirty times, without such an accident having occurred. "But in performing the operation that day, the very thing happened; a large portion of the fluid got into the cellular membrane. I had not therefore to convince him that it was possible, but how it happened." It was a case of this nature that first led me to think of another mode of cure. About two years and a half ago, I injected a native with the port-wine solution; but after a few minutes, seeing a person brought into hospital wounded and bleeding violently, I carefully handed over the case to a young assistant, the only person I had disengaged at the time, desiring him to evacuate the fluid, after the proper period. When this had arrived, however, a native dresser came to me, and said with much importance of manner, Sahib, the injection will not come. In fact, the boy had allowed the canula to slip partly out of the tunica vaginalis, and the scrotum was infiltrated. It proved a tedious case: there occurred sloughing discharges, and a painful confinement; but the man recovered; and I need not say that the cure was a *radical* one. The very next case that presented, was operated on in the manner hereafter to be described: and as upwards of ninety have since been treated in the same way, without danger or inconvenience whatever, I am induced

to hope that the present operation may be considered an improvement on that of Sir James Earle.

The operation was performed in the ordinary way; but in place of the warm solution of wine, two common urethra syringes-full were injected, of a solution of tincture of iodine, in the proportion of two drachms to six of water, of the ordinary temperature. The patient was placed in the recumbent posture, on account of rapid faintness, the canula withdrawn, and the injection retained; the scrotum being moved about freely for a minute, so as to bring the injection in contact with the whole of the vaginal cavity. The pain appeared rather more severe than from the common injection; but on the 13th March, 1832, five days after operation, he demanded his discharge; scarcely any treatment having been requisite, while in hospital.

Aness barber, well known to the fashionables of Calcutta, had a very large hydrocele on the right side, for five years. The solution of iodine was thrown up, and retained as above. The pain continued for four hours, shooting up to the loins, and he was feverish in the afternoon; but after that, he went about his occupations in a gig, daily, without inconvenience. I inspected him eleven months after the operation, and the cure was complete.

Out of the number stated in the list, eleven were Christians, and perhaps in some of them the

inflammation ran higher than in the average of natives; but even here, evaporating lotions and a smart purgative were sufficient.

In only one case did I observe symptoms of a dangerous tendency to supervene; and as it even tends to confirm the safety of the operation, it may be worthy of mention. It was that of a Mahomedan labourer, who went about his occupations for fourteen days after the operation, and came into hospital on the fifteenth, with a highly inflamed and shining scrotum. A few leeches, an evaporating lotion, and a purgative, prevented any accident.

Finding the proportions in the injection at first used, to answer so well, I have never altered them; nor need there perhaps be any change, even when Europeans are subjects of operation.

In Mr. R.'s case, and that of a few robust Mahomedans, who use animal food, but one syringe full has been injected, and this quantity may be found sufficient in the cases of most Europeans.

The effects of the iodine solution seem to be immediate, the inflammation arriving at its height in about 24 hours, and after that, subsiding rapidly. In only two instances has bleeding by leeches been found necessary. Poultices, cold lotions, and purgatives have generally constituted the treatment; and even these, as will be seen

by the table, have not been had recourse to in a large proportion of the cases, which, for the sake of brevity, I have here arranged in a tabular form.

N. B. A large proportion of the cases during the last year have been operated upon by Mr. Barrett, the first assistant.

Advantages of the Iodine Injection.

1st. It is altogether free from the danger to life so frequently occasioned by the former operation of injection with wine solution.

2nd. The cure is effected in from three to five days, in place of from fifteen to twenty-five.

3rd. The operation is greatly simplified, so much so, that any person, at all acquainted with the anatomy of the parts, may operate ; and the injection being so small in quantity, and what is more important, *retained*, infiltration is next to impossible.

List of Cases of Hydrocele treated by the retained Iodine Injection, since March, 1832—Native Hospital, Calcutta.

Date.	Names.	Quantity of the dropsical fluid.	Quantity of Iodine Solution injected.	Number of days in Hospital.	After Treatment.	Remarks.
1832.		Oz.	ʒ			
March 9th,	Umud Ollah, ..	8	iv.	4	Saline purgatives and cold lotion,	Shewed himself in July—cure permanent.
29th,	Rajmohun, ..	8	iv.	4	Purgatives and cold lotion,	Left Hospital 2nd April—doing well.
April 24th,	Muhamud Alli, ..	12	iv.	—	Suspensory bandage,	Left Hospital same evening, and not seen since.
28th,	Ruhim Khan, ..	8	iii.	1	Suspensory bandage,	Went out next day, returned 3rd May, cure pernanent.
28th,	Khodah Buksh, ..	—	iv.	1	Bandage and cold lotion,	Went out next day, and not seen since.
30th,	Hurry Mohun, ..	—	iii.	1	Purgatives, lotion, and bandage,	First operation failed—injected again 5th May—result not known.
May 5th,	Umud Khan, ..	8	iv.	1	Purgatives, lotion, and bandage,	Went out same day—returned on the 11th—doing well.
8th,	Bhola Kee, ..	12	iv.	1	Purgatives, lotion, and bandage,	Went out next day.
19th,	Gooroo Chund, ..	9	iiiss.	1	Suspensory bandage and lotion,	A double hydrocele—attended till 22nd—cured on both sides.
22nd,	Surajeet, ..	38	iiiss.	1	Cold lotion and bandage,	Went out next day, and not seen since.
June 7th,	Ram Chund, ..	10	iii.	11	Purgatives, lotion, and bandage,	Discharged on the 18th—cured.
15th,	Nizam, ..	8	iii.	8	Purgatives, lotion, and bandage,	Discharged cured.
18th,	Juwir Khan, ..	6	iiiss.	—	Bandage and lotion,	Shewed himself 20th instant—doing well.
19th,	Geenah Tiwaree, ..	—	ii.	—	Bandage,	Went out same day, and not seen since.
July 15th,	Peter Lodwick, ..	6	ii.	1	Purgatives, bandage, and lotion,	Shewed himself 24th—cured.
16th,	Golaum Alli, ..	—	iii.	9	Purgatives, bandage, and lotion,	Discharged 25th—seen often since—cured.
16th,	G. Goodall, ..	—	iiiss.	—	Purgatives and lotion,	Inflammation ran high—seen often since—cured.
22nd,	Mr. Chill, ..	7	ii.	—	An occasional purgative,	Reported well.
23rd,	Kureem Buksh, ..	32	iii.	15	Leeches, purgative, and lotion,	Discharged cured.
25th,	Aness, ..	16	iiss.	—	Bandage, lotion, and purgative,	Quitted immediately after operation—seen often since—cured.

Aug.	26th,	J. Vincent,	..	8	ii.	—	Purgative, bandage, and lotion,	Attended the two following days—doing well.
Sept.	17th,	Banoo Ram,	..	16	iii.	10	Leeches, purgative, and lotion,	Double Hydrocele—attended once after second operation.
	17th,	Birjee Ram,	..	24	iii.	1	Purgative and lotion,	Double Hydrocele—attended four days after last operation.
	23rd,	Bucsoo,	..	16	iii.	19	Purgative, bandage, and lotion,	Double Hydrocele—seen often since—cured both sides.
	24th,	Boon Malli,	..	8	iii.	1	Bandage,	Went out next day, and not seen since.
	29th,	Pran Kisson,	..	6	iii.	1	Purgative and lotion,	Remained only one day—returned 3rd October—cured.
Oct.	13th,	Ayeer Alli,	..	16	iii.	—	Purgative and lotion,	Double Hydrocele, remained in Hospital—cured.
	19th,	Ajum Udeen,	..	—	iii.	—	No treatment.	
	26th,	Kadadhur,	..	8	iii.	—	Cold lotion,	Remained one day, returned April 2nd—cured.
Nov.	14th,	Goor,	..	20	iii.	—	Lotion and bandage,	Went out same day.
	24th,	Ruffee,	..	—	iii.	—	Purgative, lotion, and bandage,	Went out same day.
Dec.	11th,	Salabuth Khan,	..	32	iii.	—	Purgative, lotion, and bandage,	Went out same day.
1833.								
Jan.	16th,	Neelmonee,	..	40	iii.	—	Purgative, lotion, and bandage,	Remained one day—returned 25th instant—cured.
	20th,	J. H. D'Souza,	..	32	iii.	—	Purgative, lotion, and bandage,	Double Hydrocele—cured on both sides.
	29th,	Harroo,	..	10	iii.	—	Purgative, and cold lotion,	Remained one day—returned 3rd Feb.—cured.
Feb.	5th,	Neohmut,	..	32	iiss.	—	Purgative and bandage,	Remained one day—returned 16th instant—cured.
	15th,	Sujeen Khan,	..	20	iiss.	12	Purgative, lotion, and bandage,	Remained in Hospital till discharged—cured.
March	6th,	Mr. Ren,	..	—	ii.	—	Purgative, lotion, and bandage,	Reported quite well 23rd instant.
	10th,	Surroop,	..	16	iiiss.	8	Purgative, lotion, and bandage,	Double Hydrocele—remained in hospital—cured.
	12th,	Meerjaun,	..	12	iii.	—	Purgative, lotion, and bandage,	Attended the three following days—not seen since.
	13th,	Meenollah,	..	20	iiiss.	—	Purgative, lotion, and bandage,	Attended three days—not seen since.
April	5th,	Ghassee Sing,	..	—	iii.	—	Bandage and a dose of salts,	Seen last 8th instant—doing well.
	10th,	Mudaree,	..	20	iii.	—	Cathartic mixture and lotion,	Left the hospital—14th instant—not seen since.
	18th,	Ajmut Oolla,	..	32	iii.	—	Purgative and lotion,	Went out 20th instant—doing well.
	20th,	Nusur Udeen,	..	—	ii.	—	Lotion and bandage,	Shewed himself 26th May—cured.
May	9th,	Toraf,	..	—	ii.	—	Bandage,	Went out same day.
	10th,	Lall Mahamud,	..	—	iiss.	—	No treatment,	Went out same day.
	22nd,	J. D'Souza,	..	8	ii.	—	Purgative and lotion,	Seen often since operation—cured.
June	1st,	Bucsoo,	..	12	ii.	—	Purgative and lotion,	Seen 14th instant—cured.
	1st,	Wujeer,	..	—	ii.	—	No treatment,	Went away after operation.
	3rd,	Syud Ahmud,	..	16	iiss.	—	Lotion and purgatives,	Seen last 25th instant—cured.

List of Cases of Hydrocele treated by the retained Iodine Injection, since March, 1832—Native Hospital, Calcutta.

Date.	Names.	Quantity of the dropsical fluid.	Quantity of Iodine Solution injected.	Number of days in Hospital.	After Treatment.	Remarks.
1833.		Oz.	3			
June 6th,	Badaloo, ..	24	iii.	8	Purgatives and lotion,	Getting well on 16th instant, when last seen.
7th,	J. D'Cruz, ..	24	iiss.	—	Purgatives and lotion,	Seen on 23rd instant—cured.
9th,	Mujeeda, ..	—	ii.	—	No treatment,	Not seen since operation.
14th,	Gowsir, ..	24	iiss.	—	Purgative and lotion,	Remained for treatment—discharged cured 24th instant.
15th,	J. Seveira, ..	20	iiss.	—	Ditto ditto,	Ditto ditto—discharged cured 25th instant.
17th,	Jumun, ..	20	iiss.	—	Treatment as before,	Ditto ditto—discharged cured 24th instant.
18th,	Najeer, ..	20	ii.	—	The same as in the last,	Ditto ditto—discharged cured 25th instant.
20th,	Remjan, ..	16	ii.	—	Purgatives, lotion, and bandages,	Ditto ditto—discharged cured 23rd instant—doing well.
22nd,	Hinggun, ..	28	ii.	—	Purgatives and lotion,	Ditto ditto—discharged 30th instant—doing well.
25th,	Mahamud Alli, ..	20	ii.	—	Ditto ditto,	Went out after operation—seen last 9th July—cured.
28th.	Peerbooram, ..	32	ii.	—	Saline purgatives and lotion,	Went out immediately, returned on 16th July—cured.
July 3rd,	Jungoo, ..	20	ii.	—	No treatment—went away.	
5th,	Jamal, ..	18	ii.	—	Saline purgatives, lotion, and bandage,	Ditto ditto—returned 15th July—cured.
6th,	Hissened, ..	20	ii.	—	No treatment.	
13th,	Aleem Uddee, ..	24	ii.	—	Ditto.	
4th,	Koocheal, ..	20	ii.	7	Saline purgatives and cold lotion,	Left the Hospital after four days—doing well,
Sept. 7th,	Doondee, ..	22	ii.	—	Tartar emetic solution, lotion, and mist. senna.	Not seen after 1st instant, when doing well.
25th,	Ramzan, ..	40	ii.	—	Lotion and saline purges,	Seen last on the 9th October—doing well.
Oct. 4th,	Soojeth Alli, ..	56	iiiss.	—	No treatment—went away.	Double Hydrocele—presented himself April 4th—cured right side.
8th,	Enaith, ..	12	ii.	—	Lotion and saline purges,	Doing well on the 16th, when last seen.

Oct .11th,	Seejun Khan, ..	20	ii.	7	Lotion and occasional purges,	Left the Hospital on the 14th, well. This man was operated on in February for Hydrocele of the other side, which is now quite well.
16th,	Mr. McL——, ..	20	ii.	—	No treatment.	
30th,	Manoolla, ..	16	ii.	—	Senna mixture and lotion,	Seen last on the 5th November—cured.
Nov. 1st,	Enaith, ..	40	iv.	—	A saline purge,	Went out next day after operation.
4th,	Bucsoo, ..	16	ii.	—	Lotion and saline purges,	Not seen after next day.
5th,	Haider, ..	24	ii.	—	Ditto ditto ditto,	Seen last on the 9th—doing well.
19th,	Kaleepersaud, ..	12	ii.	—	Lotion and ditto,	Went out next day.
—	Ameer, ..	11	ii.	—	Lotion and ditto,	Ditto ditto ditto.
Dec. 5th,	Shaik Ched, ..	20	ii.	—	Lotion and a saline purgative,	Seen last on the 24th—cured.
11th,	Juman, ..	24	iii.	—	Ditto ditto ditto,	Going on well on the 14th, when last seen.
1834.						
Jan. 1st,	Amjeed Alli, ..	20	iii.	—	Lotion and purgatives,	Remained under treatment—cured 12th instant.
3rd,	Sadee, ..	20	ii.	—	Lotion and mist. senna,	Almost well on the 8th, when last seen.
14th,	Juman, ..	—	iii.	—	No treatment.	
17th,	Issup, ..	24	iii.	—	Lotion and mist. senna,	Doing well on the 23rd, when last seen.
21st,	S. D'Cruz, ..	16	ii.	—	Lotion and bandage,	Doing well on the 25th, when last seen.
24th,	Kocheal, ..	8	ii.	—	Lotion and bandage,	Cured on 6th February, when last seen.
30th,	Gungadeen, ..	16	ii.	—	Lotion, saline purge, and tartar emetic solution,	Cured on 19th March, when last seen.
Feb. 8th,	Kanoo lall, ..	40	iv.	—	Lotion and saline purgatives,	Went out after operation—returned on 11th instant—doing well.
26th,	Hossain, ..	20	ii.	—	Lotion and a purge,	Seen only next day.
March 6,	Khodabux, ..	32	ii.	12	Lotion, saline purge and tartar emetic solution,	Discharged on the 18th—cured.
7th,	Palah, ..	12	ii.	—	Cathartic and lotion,	Not seen after the 9th, when doing well.
15th,	Yasum, ..	32	iii.	—	Lotion, purgatives, and tartar emetic solution,	Not seen after 13th, when doing well.
29th,	Jeeween Khan, ..	20	ii.	—		Under treatment.
April 4th,	Soojeth Alli, ..	44	iv.	1	Under treatment, (left side,)	This is the same who was operated on for right side 4th Oct. 1833, and cured.

Calcutta, April 5, 1834.

TRANSACTIONS

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OF THE

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DESCRIPTIONS

OF

SOME RARE AND CURIOUS PLANTS

By N. WALLICH, M. D., F. R. S. Lond. & Edin.

CORRESPONDENT MEMBER OF THE ROYAL ACADEMIES OF SCIENCES AT PARIS AND BERLIN.

Presented April 5th, 1834.

Hitchenia.

Corollæ tubus gracillimus, limbi subbilabiati lobi sex subæquales; labellum sessile. Filamentum simplex; anthera nuda, basi bidenticulata. Capsula membranacea. Semina arillo magno, stellatim lacero suffulta.

Classis Linneana: Monandria monogynia.

Ordo naturalis: Scitamineæ, Br.

Planta elegans, glaucedine densâ obtecta, radice simplici tuberibus longissimè pendulis, spicâ terminali oblongâ, bracteis saccatis regulariter imbricatâ, floribus gracillimis longè exsertis, candidis. Genus intermedium Curcumæ et Hedychio, utroque accedens antherâ nudâ, necnon habitu et inflorescentiâ; huic flore patente exserto, illo indole radicis propinquius.

Nominavi in honorem Dom. Hitchen, Norwicensis, qui per quadraginta et quot excurrunt annos plantas succulentas omnis generis incomparabili cum successu et liberalitate coluit.

Hitchenia glauca.

Curcuma glaucophylla, Wall. Catal. Herbarii Procurationis Amplissimæ Britannicæ Indiæ Orientalis (nunc Societatis Linneanæ Londinensis) n. 6594.

Habitat in collibus ripæ Irawaddi ad Prome, indeque anno 1827 in Hortum Botanicum Calcuttæ allata, ubi floret fructusque profert sub pluviis, a Junio usque ad Septembrim; paullo post tota herba moritur, rursusque enascitur mense Maii insequente.

Planta erecta, 3-5 pedes alta, glaberrima, glaucedine copiosâ vestita, pallens et omninò opaca surgens e rhizomate simplici, ovato-turbinato, carnoso, pallicari. Tubera plura ovato-oblonga, 2—3-pollicaria, albicantia, parcè fibrillosa, basi rotundatâ raro fibrillis aliquot comosa, apice in fibram gracilem attenuata, intus lacteo-alba, carne molli et uti omnes reliquæ plantæ partes absque odore vel notabili sapore, centro exsculpta cavitate angustâ, parietibus 3 vel 4 lineas crassis; altè suspensa fibris rhizomatis cylindricis crassiusculis pedalibus et ultra; interdum tubera 1, 2, 3-ve sensim magnitudine diminuentia, palmam circiter a se invicem sejuncta fibris vel radiculis ultrâ productis concatenantur. Caulis erectus, strictus, tertiâ inferiore parte vaginatus et folia gerens, basi digitum medium crassus, superiore parte bipedali nudâ, foliis longiore, cylindricâ, levissimè compressâ, pennam cygneam diametro æquante, apice infra spicam paullo incrassatâ. Folia pauca, 2, 3, rarius 4, breve petiolata, erecto-patentia, circumscriptione valde regulari ovato-lanceolata, cuspidato-acuta, membranaceo-marginulata, basi subacuta, plana, valde glauca, supra sultiliter oblique lineolata, subtùs pallidora costâ elevatâ convexâ. Petiolus pollicaris vel bipollicaris, nunc brevissimus, plano-sulcatus, desinens in vaginam longam, adpressam, membranaceo-marginatam, ore utrinque bilobo rotundato, ligulâ brevi obtusâ bilobatâ. Aliquando folium supremum angustum, lanceolatum cæterisque multo minus insidet vaginæ longiuscule liberæ, laxæ. Spica terminalis

erecta, cylindrico-oblonga, obtusa, absque ulla coma, 5—7-pollicaris, diametro 2½-pollicari, pallide viridis, minus quam folia caulisque glauca, admodum regulariter et symmetrice constructa squamis 30 ad 40 saccatis, fauce valde hiantibus, ordinibus 4 v. 5 longitudinalibus rectis seriatis, 3—4-floris. Sunt vero hæ bracteæ magnæ, obovatæ, obtusissimæ, 3-pollicares, salvo apice libero axi spicæ laxe carnosæ invicemque adnatæ, ita ut seorsim cavitates sacciformes amplas forment, limbo angusto subsemicirculari, plano-recurvato, obtusissimo, ætate pallido et subalbicante, superficie internâ nitidæ; terminales aliquot reliquis breviores, floribus vacuæ; infimæ (1 v. 2) nunc per supremum caulem vagantes, difformes. Flores albi, inodores, longissimi, valde exserti, bracteas plus duplo superantes, patentissimi, apice peractâ fœcundatione reflexi et in se ipsos spiraliter convoluti. Calyx tenuis, membranaceus, albus, 4 lineas longus, cylindricus, fauce leviter ampliatâ 3-dentatus: dentes ovati, concavi, acutiusculi, inferiores parum altius separati; suffultus bracteâ interiore brevi, oblongâ, obtusâ, concavâ, tenuissimâ. Corollæ tubus longissimus, gracilis, teres, æqualis, 4-pollicaris, vix lineam diametro excedens, supra planiusculus lineolaque longitudinali obscurè notatus, apice paullisper dilatatus. Limbus parvus, patens, subbilabiatus, 6-lobus, diametro pollicari; lobi duplici serie alternantes, fere æquales; exteriores tres oblongi, obtusi, concaviusculi, superior adscendens, cum lateralibus interioris seriei labium limbi superius constituentes; inferiores superiori simillimi, infra labellum decurvati; lobi interiores exterioribus formâ æquantes sed parum breviores, suprà pube minutâ conspersi; inferior sive labellum, labium floris inferius formans, oblongum, medio sulco exaratum, recurvatum, apice dentibus duobus ovatis acutis, marginibus parum revolutis, reliquis lobis parum crassius, suprâ puberulum. Stamen distinctum et liberum, e margine superiore ostii tubi intra lobos limbi interioris ortum, labello oppositum, limbo parum longius, adscendens; filamentum breve, conicum, nudum, album, anticè sulco pro stylo recipiendo exsculptum; anthera erecta, oblonga, obtusa, nuda, carnosa, alba, dorso convexa, basi bidentata,

dentibus ovatis, acutis, brevissimus, intus parallelis; apice concaviusculo obtuso obsoletissimè 3-loba, lobis obtusis, dorsali latiore, anticè leviter contracta subcompressa loculos adfigens parallelos, hisce dehiscentibus plana, medio sulcata, ambitu oblongo parietibus loculorum retractis submarginulata; pollen copiosum, globosum, læve, minutum, viscidulum, ex albo dilutissimè luteolum. Ovarium parvum, subcolumnare, obsolete 3-angulare, læve, nitidum, 3-loculare, pluriovulatum; stylus prælongus, fere capillaceus, per totum tubi corollæ tractum sulco parietis postici receptus, deinceps sulco antico filamenti occultus, brevissimo tantum spatio inter apicem hujus et basin antheræ liber, inter loculus antheræ adscendens; stigma infundibuliforme, a tergo depressum et planiusculum, ore integro transverso foveam apicis antheræ occupans. Corpuscula duo (stamina sterilia, Brown,) minuta, carnosa, flavicantia, cylindrica, styli basi hinc adposita. Capsula obovato-trigona, angulis obtusissimis, vertice leviter triloba depressa, membranacea, 3-locularis, 3-valvis. Semina pauca, oblongo-cylindrica, obtusa, arillata; arillus laxus albus submembranaceus, umbilico, magno pyriformi carnoso adnatus, profundè divisus in lacinias lineares acutas, sæpius integras, nunc fissas, semine fere duplo longiores, demum stellatim patentes. Testa coriacea, fusca, lucida; endopleura tenuissima. Albumen farinaceum, lacteo-album, superiore parte vitellum concolorem, carnosum, infundibuliformem arcte suffultiens. Embryo totam seminis longitudinem emetiens cylindricus, medio leviter contractus, utrinque obtusus, basi subdilatatâ nudus.

Obs.—There is an elegance and symmetry about this plant which render it an object of great beauty. A dense pallid, not easily separable bloom covers all its herbaceous parts, especially the leaves, which are large and showy. The upper or naked part of the stem is very tall and slender; it supports at its apex a thick cylindric and erect spike,

which is covered in all directions by large, regularly disposed bracts; each forming an open and deep pouch, from the bottom of which rise three or four flowers. These are remarkably long and slender, perfectly white, without smell; that part of their tube which is beyond the pouch measures two inches in length, and spreads almost at a right angle from the spike. They are elongated in succession and indiscriminately from the lower as well as the upper part of the spike; but only one opens at a time in each of the pouches, which contain generally a quantity of water derived from rain or dew. The limb of the flower is small, compared with the length of the tube. It opens about dawn of day; and soon after the sun has risen above the horizon, but in cloudy weather not until the afternoon, fecundation has taken place, which is indicated by the outer end of the tube turning down upon itself, drawing the half-closed limb down with it, and forming together a short spiral, caused probably by a sort of contraction of the style; after this the corolla immediately withers. The seeds, which are small and not very numerous, are lifted up to the opening of the capsule, and even ejected from it, by the star-like expansion of the curiously formed arillus, which forces the contents of the capsule to seek a larger space than the cavity of the capsule affords for the seeds, while it is in a contracted state. The membrane of the pollen-globules is so thin and diaphanous, that by means of a lens of $\frac{1}{40}$ inch focus, the motion of the contents is dis-

tinctly visible before bursting. This interesting phenomenon was first observed by the illustrious Dr. Brown in other plants, and has been adverted to in his Microscopical Observations, printed in June, 1828.

The plant thrives remarkably well in a moderately rich garden mould, and is multiplied with ease both by separating the new roots which form annually, and from seeds. These latter I have succeeded in obtaining in small quantities by applying artificially the mucous pollen to the stigma as soon as the flowers have expanded in the morning. The roots begin to shoot early in May, and in the following month, that is shortly before the rainy season, the plant commences blossoming, and continues until August or September, when the seeds ripen; soon after it dies down to the ground. No part of the plant possesses any aromatic taste or smell, nor is it probable that it can be applied for any useful purpose except as a garden ornament; it is probable however that the tubers may contain a proportion of starch or arrow-root.

I have great satisfaction in dedicating this new and distinct genus to —— Hitchen, Esq. of Norwich: a gentleman who, during upwards of 40 years, has devoted himself with ardent zeal to the pursuits of horticulture, and chiefly to the rearing of the difficult and multifarious class of succulent plants, with a degree of success which has long since ranked his collection among the rich-

est in the kingdom, and with a genuine spirit of liberality and disinterestedness which has rarely been equalled. When in the autumn of 1831 I visited Norwich, a town sanctified to all botanists as the residence of the late immortal founder of the Linnean Society of London, the collection was in a most flourishing state, and I am confident that there was not a duplicate in it which the party I had the honour of accompanying would not readily have been permitted to carry away; it is therefore with real regret I learn that circumstances have recently compelled the liberal-minded owner to discontinue so noble a collection.

I avail myself of this opportunity for making a few remarks relative to the production of glaucedo, or bloom of plants. Although this substance in a remarkable degree covers all the herbaceous parts of our plant (which in fact derives its specific name from the circumstance), and is in part easily separable, yet it cannot be altogether removed, as is proved by the surface beneath always continuing opaque and of a dull-green pallid colour; nor is a fresh or exterior layer again reproduced when once it has been rubbed off. In the common castor oil plant, the case is quite different. Here the bloom is likewise very copious and easily separable; but after being removed, the surface below appears quite shining, and it is reproduced again as often as it is removed. Several plants of the red variety, which had been rais-

ed from seeds sent down from the Botanic Garden at Saharunpore, in 1832, were growing within a few feet from each other in one of the nurseries of the Calcutta garden; they measured from 12 to 14 feet in height. One of these plants was densely covered throughout with glaucedo; all the other individuals were perfectly destitute of it, and had a uniformly red and glossy surface. During the rainy season of the succeeding year, in the months of June, July, and August, the following experiments were made. I rubbed off every particle of bloom from the individual first mentioned, so that the stem, branches, and leaves became quite naked and shining. Within a fortnight a thin layer of bloom had already formed, and in six or eight days more, the surface was as much covered as it had ever been before; this process was several times repeated, and uniformly with the same result. Imagining that the numerous glands which covered the lower half of the petiols, and even the sides of the branches near their insertions, in the other individuals, might be in some manner connected with their having no glaucedo, I removed all these glands, not only from the adult petiols, but likewise from the young shoots as they began to appear; but although I continued doing this for several months in succession, no vestige of bloom was to be seen on any part of their surface. I should observe here that the pair of large sessile glands, which are found at the apex of the petiol of this plant, was present also in the glaucous individuals; their removal had no sensible effect

whatever; and it is a curious fact, that all the plants continued perfectly healthy and thriving, producing abundance of flowers and fruits, notwithstanding the repeated treatment they underwent of having their bloom and glands rubbed off. A large inoffensive sort of black ant, which is found annually to frequent this plant in search of the matter exuding from the glands, continued in great numbers on the petiols, notwithstanding the removal of the glands and the complete cicatrization which immediately followed the operation. In Musa glauca, Roxb. the sheathes of the leaves are very thickly covered by a white powderly bloom, which is constantly reproduced.

The preceding experiments seem in some degree to invalidate an observation of Professor De Candolle in his Physiologie Végétale, a work unrivalled for the vast store of information which it contains, and the perspicuous manner in which it is written. In the 2nd vol. p. 232, that most eminent botanist says: "Malgré l'extrême analogie qu'on observe entre la cire excrétée par les feuilles et par les fruits, elle m'a présenté une différence physiologique que je dois mentionner. La poussiére des prunes peut être enlevée plusieurs fois en les brossant doucement avant leur maturité, et à chaque fois elle se reproduit. Celle des feuilles de ficoïdes ou de cacalies une fois enlevée, ne s'est pas reproduite, et semblerait être excrétée par les feuilles seulement pendant leur jeunesse." If I understand this passage correct-

ly, the reproduction of the bloom on certain fruits is contrasted with the incapability of its reproduction on other parts, at least on leaves. With respect to Mesembryanthemum and Cacalia, the fact is undoubtedly as stated by the author; but it certainly does not hold good as far as regards the two plants I have mentioned above.

Alsodeia bengalensis.

Fruticosa, glaberrima, foliis lanceolatis argutè serrulatis acuminatis subtùs ad axillas nervorum excavato-ciliatis; floribus axillaribus fasciculatis nutantibus, staminibus lævibus antheris apice lato-ligulatis; disco convexo undulato; capsulâ globoso-trigonâ obtusâ trispermâ.

Pentaloba? bengalensis, Wall. Catal. Herb. Ind. Oriental. n. 4896.

Habitat in jugo Pundua, Bengalæ orientali confini, ubi detexit Henricus Bruce; in Hortum Calcuttensem viventes plantas misit Gulielmus Gomez anno 1830. Apud nos primâ vice floruit 1832, capsulasque maturas tulit Martio insequente.

Frutex erectus, ramosus, omnibus partibus glaberrimus (quarto anno 4 circiter pedes emetiens). Rami alterni, erecto-patentes fuscescententes, cylindrici. Folia alterna, patentia, approximata, interstitiis pluries longiora, lanceolata, acuminata, argutè serrulata, a medio deorsum attenuata, basi acutâ integerrima, 3-5 pollicaria, plana, substantiæ siccæ et membranaceæ, suprà laete viridia, nitida, nervis teneribus exstantibus subreticulatis, venisque frequentissimis inter hos parallelis capillaceo-elevatis; subtus pallidiora subopaca, costâ gracili albicante, nervis pluribus alternis obliquis tenerrimis, ad marginem ferè excurrentibus, ad axillas omnes foveolâ ovali pube griseâ densâ ciliatâ excavatis, venis inconspicuis et omnino non eleva-

tis. Petiolus vix unguem longus, cylindricus, suprà plano-sulcatus. Stipulæ duæ oppositæ, petiolum longitudine parum superantes, lanceolatæ, attenuato-acuminatæ, integerrimæ, valde caducæ, membranaceæ, æstivatione gemmam formantes terminalem subulatam longiusculam. Folia tenella conspersa pube adpressâ solubili fuscescente cito evanidâ. Flores pauci parvi, albi, inodori, nutantes, axillares, fasciculati. Pedunculi albicantes, cylindrici, subcarnosi, puberuli, lineas 3 longi, basi bracteolis aliquot minutis gemmaceis evanescentibus et emarcidis ovatis concavis dorso subcarinatis ciliatis acutis. Calyx parvus subcarnosus, corollâ plus dimidio brevior, cumque illa staminibusque tardiùs emarcescens; sepala 5 ovata, acutiuscula, concava, dorso carnosa, membranaceo-marginulata, ciliolata, basi latiusculâ subimbricantia. Corolla subventricoso-oblonga, fauce leviter revoluto-patula, pedunculum longitudine æquans, æstivatione imbricata; petala 5 æqualia, sepalis alterna, oblonga, apice obtusâ leviter recurvata, integerrima, glabra, membranacea. Stamina 5 distantia, erecta, glabra, petalis parum breviora; filamenta subclavata, teretia, carnosa, circum ovarii basin disco carnoso annulari flavido convexo obsolete 5-lobo intus inserta; antheræ erectæ, filamenta longitudine fere superantes, loculis parellelis flavicantibus introrsum versis, dorso propter connectivum latiusculum distantioribus apiceque ultra productis in ligulam antheræ terminalem ejusque longitudine, liberam, leviter incurvatam, cum reliquis conniventem, lato-ovatam obtusam membranaceam albidam; pollen dilute luteolum, ovato-globosum; connectivi apex intus dehiscentiâ loculorum subliber, cuspidulatus. Ovarium carnosum, ovato-globosum, obtusè subtriangulare, læve, basi disco supra memorato annulari cinctum, 1-loculare, 3-sporum; ovula majuscula, parietalia; stylus columnaris, carnosus, erectus, staminibus parum longior, basi subpersistens; stigma parvum exsertum, obsolete trilobum. Capsula regularis, globoso-subtrigona, obtusissima, sicca, magnitudine pisi majoris, lævis, fuscescens, basi partibus floris emarcidis circumdata, vertice apiculata, 1-locularis, elasticè ab apice ad

basin 3-valvis. Valvæ naviculares, concavæ, circumscriptione subcirculari, mox post dehiscentiam valde contractæ, apicem subulato-cuspidatum versus crassiores indeque deorsum per valvæ ventrem carinatæ lineâ decurrente semilunari subfalcatâ superne crassiore et subhamosâ, basin versus evanescente, medio plagulâ impressâ orbiculari adfigente semen obovato-globosum, fusco-maculatum, læve, magnitudine fere seminis piperis nigri, cavitatem valvæ exactè replens, hujus contractione dimidio extra cavitatem propulsum, carinæ istæ medio umbilico parvo convexiusculo adherens. Testa crustacea et fragilis, tenuis, albida, intus lævis, extus obtecta epidermide subcarnosa, facilè solubili, hinc raphe latâ notatâ. Tunica tertia interna, vel endopleura, tenuissime membranacea, glabra, fuscescens, vertice gerens chalazam oblique descendentem pallidam. Perispermum copiosum, album, carnosum, axi exsculptum cavitate latissimâ. Embryo magnus, albus, carnosus, erectus, compressus, totam perispermi axin occupans, tamen cavitate sæpius angustior. Cotyledones maximæ, planæ, parallelæ, orbiculatæ, obtusissimæ, basi vix cordatæ. Radicula umbilicum externum respiciens, infera, brevissima, conico-cylindrica, crassiuscula, apice a perispermo fere denudata.

Obs.—This curious plant, a large shrub of the family of Violets, agrees so perfectly with the genus Alsodeia of Aubert du Petit Thouars, that there can be no doubt of their identity; as a species it resembles more closely those recorded by him in the Histoirès des Végétaux des Isles Australes d' Afrique, than it does several others described and figured by Professor Von Martius in Nova Genera et Species Plantarum Braziliensium. At the time I entered the plant in the Lithographic Catalogue of the Honorable Company's, now the London Linnean Society's Herbarium, I had not seen the

fruit, and therefore doubtfully referred it to Loureiro's Pentaloba, which Dr. Brown has determined to be at least a closely allied genus, in his Appendix to Tuckey's Narrative of the Expedition to Congo, p. 441. I strongly suspect with that illustrious botanist that both genera may eventually prove one and the same, in which case father Loureiro's name should be adopted by right of priority; meanwhile I have preferred placing my plant under Alsodeia, on the grounds mentioned by Dr. Brown. Nothing can be more striking than the resemblance of the capsule to that of the common Violet.

Roxburgh's *Vareca lanceolata* and *heteroclita*, Flor. Ind. vol. i. p. 448, (vol. ii. p. 246, of Dr. Carey's edition) are species of *Alsodeia* or *Pentaloba*. The former I have called *P. lanceolata* in Catal. Herb. N. 4023, and in a note to 7189; the latter P. Roxburghii, N. 7189. I cannot assign any reason for his placing these plants under Vareca, after he had very properly referred the genus to Casearia.

Viola distans.

Puberula, prostrata, caulibus gracilibus elongatis; foliis longe petiolatis lato-cordatis subacutis crenulatis, lobis basis rotundatis; stipulis lanceolatis obsolete denticulatis; floribus longe pedunculatis nutantibus lævibus, calcare brevissimo, sepalis basi integerrimis.

Viola distans, Wall. Cat. Herb. Ind. Or. No. 4022.

Viola serpens, Wall. l. cit. No. 1441 B ? (in fol. 249 column. sinistr.) ?

E. montibus Sillet propinquis in Hortum Calcuttæ introduxit Dom. S. P. Stacy* fine 1833. Floruit insequente mense Martii.

Planta prostrata, proveniens e radice simplice fibrosa. Caules plures subsimplices, graciles, teretes, cum petiolis pedunculisque puberuli, apice adscendentes, subsimplices. Folia remota, alterna, lato-vel subrotundo-cordata, nunc subreniformia, longiuscule petiotala, acutiuscula vel obtusa, minime acuminata, crenulata, lobis basis rotundatis, marginibus interioribus parallelis subimbricantibus, postea distantibus, pollicaria ad $1\frac{1}{2}$-pollicaria, utrinque secus vasa puberula, supra atroviridia vix rugosula, subtus 5—7-nervia, reticulata. Petiolus gracilis, supra sulco levi exaratus, limbum æquans vel paullo superans. Stipulæ oppositæ, lanceolatæ, acuminatæ, lineas 4 longæ, fere æquilaterales, minutim serrulatæ. Flores resupinati, parvi, dilute violacei, inodori, axillares, solitarii, longe pedunculati, nutantes, suffulti pedunculo filiformi folio dimidiò longiore, supra medium munito bracteis duabus oppositis parvulis linearibus. Sepala lanceolata, attenuato-acuminata, integerrima, glabra, corollâ breviora, basi obtusa edentula peltata. Petalum superius, torsione inferius, oblongum, obtusum, subretusum, leviter concavum, glabrum, laminâ supra saturatius violaceâ striatulâ, basi parum contractâ desinens in calcar breve, compressum, obtusum, sepalorum basibus liberis longius. Reliqua petala glabra, oblonga, obtusa, patentia, subæqualia, lateralia parum torta. Stamina omnino distincta glabra; filamenta brevissima, inferiora 2 processum compressum carinatum brevem demittentia, calcar intrantem; antheræ terminatæ

* In little more than two months after this was written, the grave has closed over this truly excellent man. In order to commemorate the ardent zeal in the cause of Horticulture which distinguished this valued friend, and in which indeed all the members of his family partake, I have called the delightful "Violet-Pea" of Cherra Poonje, which he received in 1832 from his late amiable sister, Mrs. Skipton, and introduced into the Calcutta Botanic Garden, *Crotalaria Stacyana.*

ligulâ dilute aurantiacâ lanceolatâ stylo angustiore et parum longiore. Pistillum glabrum, staminibus vix longius ; ovarium ovatum, stylus clavatus, stigma compressum subbilobum.

Obs.—This species comes very near to my Viola serpens (DeCand. Prodr. vol. i. p. 296), which has been beautifully represented in Mr. Royle's excellent Illustrations of Indian Botany, tab. 16, fig. 1. The two species are however quite distinct, and may be easily recognised by attending to the following points : Viola serpens has very pubescent stems, ovate-cordate, tapering-acuminate leaves, and strongly ciliate-dentate stipules ; our plant has almost smooth stems, round-cordate, subobtuse or very slightly pointed leaves, and very obscurely denticulate stipules ; the flowers of that are bearded within the acute labellum, the sepals denticulate at the base, and the processes from the two lowermost filaments longish and subulate ; in our species the flowers are quite smooth, the labellum obtuse and slightly retuse, the sepals entire, and the staminal processes keel-shaped, subtruncate. Viola serpens has always whitish flowers ; those of V. distans are pale violet.

I shall have a fitter opportunity than the present of adverting to Mr. Royle's Illustrations just mentioned, of which the first part has lately reached this country, together with the first seven sheets of another highly interesting work, in progress of publication by Dr. Robert White, late

superintendent of the botanical establishment at Madras, conjointly with Mr. Walter Arnott, entitled Prodromus Floræ Peninsulæ Indiæ Orientalis; but I cannot even thus casually mention them without congratulating the Medical and Physical Society of Calcutta, on ranking among its learned members, these two naturalists, whose pre-eminent talents are now engaged in publishing two of the most valuable and important works that have ever been produced on the Flora of India. I may add also, that Dr. Wight's liberality in distributing among the botanists in all parts of the world the numerous duplicates in his stupendous Herbarium is altogether unrivalled in the annals of Natural History, except in the late instance of the Honourable India Company.

Phlebochiton.

Calyx quinquedentatus. Petala 5, sessilia, dentibus calycinis alternantia, aestivatione imbricantia. Stamina 10, distincta, inserta circum discum annularem perigynum. Ovarium sessile, depresso-quinquelobum, 5-loculare, 5-ovulatum, ovulis pendulis; styli 5 breves, basi vix persistentes; stigmata convexa. Drupa carnosa, obliqua, monopyrena (abortu); putamen coriaceum, lacunoso-resinosum, extus grosse vasculoso-reticulatum, 1-loculare; embryo rectus, exalbuminosus, radiculâ conicâ, superâ.

Classis Linneana: Decandria pentagynia.

Ordo naturalis: Terebinthaceârum Juss. tribus Sumachineæ, Decand.

Frutex magnus, late scandens, ramis longissimis nutantibus, foliis alternis impari-pinnatis, plurijugis; floribus parvulis laxe paniculatis; drupis parvis extus carnosis.

Genus Rhoi proximum, differens numero staminum, embryone simpliciter inverso nec funiculi ope sustento, putamine egregie vasculoso (unde nomen, derivatum ex φλεψ vas corporis organici, vena; et χιτων tunica, vestimentum). A Mauria discedit ovario haud 1-loculari 1-sporo, stylis uno pluribus, stigmatibus haud crassis angulatis, fructu non umbilicato, demumque radiculâ haud uncinato-descendente. Schinus distat structurâ ovarii et fructus, tandemque radiculâ inferâ longâ. Habitus præterea ab hisce generibus alienus, salvis quibusdam speciebus Rhoes scandentibus. Accedit ad Connaraceas exalbuminosas.

Phlebochiton extensum, Wall.

Robergia hirsuta, Roxb. Hort. Beng. p. 90? Ejusd. Flor. Ind. vol. ii. p. 455?

In sylvis montanis provinciæ Sillet vicinis detexit Franciscus de Silva, plantasque viventes in Hortum Calcuttensem misit anno 1824, ubi læte viget, florens Februario, fructusque proferens maturos Aprili.

Frutex magnus, inermis, valde ramosus, alte lateque super alios frutices arboresque scandens. Caulis digitum medium crassus ramique primarii cylindrici cortice induti læviusculo fusco nitido, intus medullâ farcti. Rami valde numerosi, sparsi, longissimi, extrorsum gracillimi, debiles, virides, pilis patentibus fuscentibus mollibus conspersi; juniores, uti petioli, foliolorum pagina inferior pedunculique, dense ferrugineo-villosi, nunc ad axillas foliorum a delapso ramulo vel inflorescentia in speciem glandulæ dilatati. Folia patentia, alterna, interstitiis sæpius bis terve longiora, palmaria, dodrantalia, pedalia, quin ultra, impari-pinnata, 4—6-juga, petiolata. Petiolus 2—3-pollicaris, teres, gracilis, villosus, supra sulco exiguo exsculptus, basi leviter intumescente subcarnosâ utrinque ad insertionem marginulâ prominente notatus; rhachis gracilis, mollissime villosa, supra leviter sulcata, æqualis. Pinnæ oppositæ, pollicem ad duos in jugis distan-

tes, nunc paullo alternantes, ovatæ, cordatæ, acumine obtuso ½ unguiculari terminatæ, integerrimæ, vel extrorsum serraturis aliquot inæqualibus instructæ, 1½—2 ad 3-pollicares, basi obtusæ, sinus brevissimi lobis rotundatis; membranaceo-coriaceæ, brevissime petiolatæ, supra læte virides, punctulis minutis pubeque secus vasa asperula, subtus nervoso-venosa, villosula, costâ gracili, nervis subalternis arcuatim ad marginem excurrentibus, venis reticulatis, ad lucem visa nec glandulas exhibentes, nec puncta pellucida, nisi aliquot valde incerta rarissimaque venulas terminantia; exteriores pinnæ paullisper minores, terminalis ovato-lanceolata, basi acutiuscula, proximis parum longior; omnes muniti petiolis partialibus cylindricis, lineam vel duas emetientibus, dense ferrugineo-villosis. Stipulæ omnino nullæ. Paniculæ gracillimæ, breve pedunculatæ, axillares, foliorum longitudine, aut eadem parum superantes, vel terminales ramuli, molliter villosæ, ramulosæ, inflorescentiam amplam terminalem paniculatam formantes. Pedunculi teretes, graciles, infra primam paniculæ ramificationem bipollicares; partiales sparsi, remotiusculi, perquam teneres, filiformes, suffulti bracteâ foliaceâ unguiculatâ spathulato-lineari semipollicari nunc crenulatâ obtusiusculâ evanidâ. Flores admodum parvi, albi, inodori (an aliquando polygami?) fasciculatim subracemulosi, pedicellis insidentes subcapillaribus brevissimis bracteolâ lineari suffultis, villosis. Calyx villosus, 5-dentatus, patens, æstivatione imbricato-globularis; dentes ovati, acutiusculi. Petala vix ultra lineam longa, alba, glabra, patentia, calyce minuto duplo majora, sessilia, ovata, acuta, impunctata. Annulus carnosus in fundo calycis ovarium ambiens, convexus, leviter undulatus, pallide flavidus. Stamina 10 patenti-erecta, glabra, aqualia, circum annulum istum inserta, petalis parum breviora, hisce dentibusque calycinis alternatim opposita; filamenta subulata; antheræ ovatæ, erectæ, albæ, 2-loculares; pollen minutum globulare. Ovarium ratione floris majusculum, læve, depresso subovatum, vertice inæqualiter et brevissime 5-lobum, hinc gibbosum propter ovulum unicum tantum impregnatum; 5-loculare; ovula solitaria, oblonga,

pendula, 4 abortiva; styli brevissimi, conici, carnosi; stigmata convexa, carnosa, rugosula, vix dilatata. Drupæ paniculato-racemosæ, oblique ovatæ, obtusæ, vertice vestigio uno alterove obsoletissimo distante a stylorum basi notatæ, ruberrimæ, carnosæ, læves, volumine pisum maximum aquantes, 1-loculares, 1-spermæ, obsque ullo vestigio loculorum ovarii cæterorum abortivorum. Caro mollis, crassiuscula, inodora, rubicunda, putamini arcte adherens. Putamen drupæ figuram fere referens, subreniforme, obtusum, coriaceum, basi umbilicatum, extus reticulatum vasibus crassis latisque anastomosantibus prope verticem hinc in centrum latum confluentibus; intus læve; parenchyma lacunosum succo resinoso debiliter aromatico flavido repletum. Albumen nullum. Embryo rectus, carnosus, magnus, pallide viridescens, inversus. Cotyledones oblongæ, obtusæ, crassæ, intus planæ, extus gibboso-convexæ. Radicula minuta, conica, umbilico diametrice opposita, supera.

Obs.—This is a large and ramous shrub, which rambles extensively over others, and some times covers them with its very long, slender and nodding branches. It is well furnished with leaves almost the whole year round. The flowers are very small; but this defect is made up by their number; they constitute numerous long, thin and flaccid, axillary as well as terminal panicles. In general they are hermaphrodite; but as only one shrub out of many which are cultivated in the Botanic Garden has produced fruit, I am led to conclude that they are sometimes polygamous. The bark as well as the green parts possess a slightly resinous quality; at least they emit a faintly aromatic smell on being bruised.

I have quoted Roxburgh's Robergia hirsuta from Chittagong as a doubtful synonymon, of which there exist only the scanty data contained in his two works cited above; there is no figure of it among the Doctor's beautiful collection of botanical drawings at the Honorable Company's Botanic Garden at Calcutta. It is very possible that the plants may be identical. That our shrub cannot be a Robergia (which is the same genus as Rourea), nor any other genus of Connaraceæ, is evident from the account of the remarkable structure of the ovarium in that family, which is given by Dr. Brown in the Appendix to Tuckey's Expedition to Congo, p. 432. According to this illustrious botanist Robergia has ex-albuminous seeds, so that Roxburgh's plant must at all events be separated from it; the latter attributes moreover a two-valved nut to it, which if correct, would remove it still further. Upon the whole, I am inclined to think that Roxburgh's and my plant are one and the same; the more so because the putamen in both abounds in a fragrant balsam, which is contained in its large cells.

Calcutta,
March 27, 1834.

ON THE EXISTENCE

OF

A NEW PRINCIPLE (SUB-RUBRINE), IN HUMAN BLOOD,

IN THE HEALTHY AND DISEASED STATE,

AND

IN THE BLOOD OF SEVERAL OTHER MAMMALIA.

BY

W. B. O'SHAUGHNESSY, M. D.

Presented July 5th, 1834.

A FEW days before my departure from Calcutta in April last, while engaged in the analysis of some specimens of blood drawn from patients labouring under disease of the spleen, my attention was forcibly attracted by some very remarkable phenomena, which were wholly inexplicable according to the previous state of our knowledge of the composition of the blood. These appearances surprised me the more, as in the course of my inquiries regarding the chemical pathology of the Cholera I was necessarily obliged to subject nearly two hundred samples of blood to a rigorous analysis, conducted chiefly, accord-

ing to the processes recommended by Lecanu* and Denis†, whose works are the latest and best authorities on this interesting subject.

The appearances, I allude to, first presented themselves during an experiment made to ascertain the amount of colouring matter, in 1,000 grains of spleen blood. Being pressed for time, I adopted a mode of analysis calculated to afford more expeditious results than that I was previously in the habit of employing. It consisted in decanting the serum, and depriving the coagulum of its fibrine, by kneading it in a muslin bag. Alcohol was then added with a view to coagulate and throw down the colouring matter and adhering albumen. The precise amount of this albumen being readily known by data afforded by the analysis of the serum, the amount of pure colouring matter can thus be precisely computed. When the alcohol was added, and the coagulation effected, I threw the mixture on a very fine muslin filter. A very turbid fluid immediately passed through; supposing that the flakes were merely imperfectly coagulated colouring matter, I boiled the turbid fluid, in order to accelerate the separation I expected. To my surprise, however, instead

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* Nouvelles Recherches sur le Sang, par M. L. R. Lecanu, Journal de Pharmacie, September and October, 1831. These Essays gained the gold medal of the Academie de Medicine, July, 1831.

† Recherches Experimentales sur le Sang Humain, &c. &c. par P. S. Denis, M. D. P. &c. Paris, 1830.

of this effect, the very contrary was produced. The heated fluid, instead of coagulating, became more transparent, and all the turbid flocculi were dissolved when the boiling point was attained. Allowed to cool, the solution again became cloudy, and when at 80° Fahrenheit, a copious deposit, of a faint flesh colour, was obtained. By alternate heating and cooling, whether gradual or sudden, the same effects were indefinitely produced. A portion was filtered and the flaky substance dried, in which state it was soluble in diluted alcohol, infusible when heated on platinum foil, and insoluble in sulphuric æther.

To those practically conversant with this department of animal chemistry, I need scarcely observe, that the preceding facts afforded by themselves the strongest evidence of the existence of a principle previously unknown, in the blood then under examination. But as several gentlemen, who may hear or read this paper, are much more profitably employed than in the pursuits of practical analysis, I will venture to explain these proofs of the speciality of the principle in question.

1. The *animal* principles previously known to exist in human blood, were fibrine, albumen, oil, a compound of albumen and soda, traces of urea, and the red principle, called by some *Hematosine*, by others, simply colouring matter; and which I think should be termed *Rubrine*, in conformity

with the radical source from which the names of the other principles have been derived.

2. The substance noticed in the above experiment could not have been fibrine, because all the fibrine had been previously removed.

3. It could not have been albumen, as albumen is coagulated permanently by heat and by alcohol, separately or conjointly; whereas the new substance is soluble in diluted alcohol in the boiling state.

4. It could not have been urea, for urea is soluble in hot and cold alcohol and water; but the new principle was precipitated as its solution cooled. The same remark applies to the albumenate of soda, and from this substance it was still more unequivocally distinguished by numerous other properties, which I shall subsequently detail.

Lastly, it could not have been the oleaginous matter, as this ingredient of the blood requires very strong and hot alcohol for its solution; is fusible by heat, and soluble in cold sulphuric æther. The new principle is soluble in diluted alcohol, *infusible when heated* in the dry state, and *totally insoluble in sulphuric æther*, at any temperature.

The existence of a previously unknown principle in the specimen of blood then before me having been thus unequivocally ascertained, several

interesting questions immediately arose. Whether this substance was peculiar to blood in spleen disease, or common to that and the healthy fluid, constituted the most essential and interesting enquiry. By the kindness of my friend, Mr. Twining, and with the opportunities I enjoyed as Acting Asst. Surg. of H. M. 49th Regt. I was speedily enabled to ascertain by numerous experiments, that the new principle is of universal occurrence, in health, in disease, in the Indian and European, and in all conditions of age and sex. Since my departure from Calcutta, I have further detected it in the cow, horse, goat, sheep, jackal, fox, and dog.

The average quantity in 1000 parts of blood was readily found, by a repetition of the process which led to the discovery of the principle itself. It was thereby ascertained to vary in amount from 10 to 15 grains per 1000:—thus exceeding considerably the amount of fibrine, and ranking next in proportion to the albumen.

Fify grains were then subjected to special proximate analysis, in order to obtain a more accurate knowledge of its properties, and thus if possible to be enabled to name it correctly, with reference to its nature and composition. In the dry state, it is opaque, pulverulent, of a reddish brown colour, totally infusible by heat, leaving a very minute earthy residuum when calcined on platinum foil or mica, insoluble in absolute alcohol or

distilled water when cold, (insoluble in æther or the oils, fixed or essential,) but soluble in diluted alcohol at the boiling point, and again deposited of a faint flesh colour on cooling; redissolved instantly by the addition of nitric acid in the proportion of one drop to 1000 of the mixture, and the solution rendered turbid by ferro-prussiate of potassa and tincture of galls; unaffected by currents of oxygen, hydrogen, nitrogen, sulphureted hydrogen, and carbonic acid gas.

To complete the history of this remarkable substance, a minute ultimate analysis is peremptorily required. I regret to say, that I do not possess the necessary apparatus, neither can I in this remote situation attempt the construction of one on which I could at all rely. In my journey here my barometer and all my spare glass tubes were broken to pieces. I must consequently wait some more favorable opportunity of completing this branch of the inquiry. Meanwhile, without straying beyond established facts, and without far overstepping the bounds of legitimate induction, we may endeavour to estimate the relations which exist between this substance and the other well known animal ingredients of the blood.

In the first place, while it differs remarkably from the colouring matter, or *rubrine*, and from the *albumen*, we still find it participating in some of the properties of each, to a degree, that establishes a certain affinity among the entire. While

it differs from the rubrine in its relations to heat and its solubility in diluted alcohol, it nevertheless resembles it strongly in the most important and peculiar of its properties, namely, *the red colour*. Again, while the new substance differs widely from albumen, also in the mode in which they are affected by heat and alcohol, it still exhibits the same reactions with tincture of galls, ferrocyanate of potassa, some of the acids, the alkalies, and with the gases I have above enumerated. Thus while on the one side we establish the essential differences between the three substances, we trace their analogies on the other. We find a resemblance sufficiently strong to warrant us in deeming it highly probable, that in the wondrous laboratory of the living frame, this new principle exemplifies the concluding stage in the hitherto obscure process of the complete reddening of the blood. An additional and important step, it is highly probable, is thus added to our knowledge of the various changes which occur, from the time that the digestive transmutation of aliment commences, until the change is consummated by the formation of blood. Dr. Prout first shewed imperfectly formed or "incipient" albumen in the contents of the duodenum and jejunum intestines. The researches of other chemists pointed it out when fully formed in the thoracic duct. The colouring matter, too, we may trace in the pink coagulation of the chyle, but it is still imperfect, requires elaboration in the lungs, and in point of fact, as I have ascertained by

experiment on the dog, is chiefly composed of the new principle to which I have had the honor of drawing the attention of the Society.

We have thus, I conceive, acquired a sufficient amount of evidence to warrant the application of the term *Sub-Rubrine* to the principle now pointed out. Additional researches will, it is to be hoped, increase our knowledge of its properties, and possibly may derange some of the preceding conclusions. Nevertheless, the denomination I propose will continue to be appropriate, since it necessarily involves no theory or conjecture, and rests chiefly on the physical fact of the modified red colour of the principle itself.

In conclusion, I feel bound to express my obligations to Mr. Twining, for the facilities he afforded me in pursuing this inquiry, and for his kindness, in witnessing the experiment by which the existence of the new principle is proved. Dr. French of H. M. 49th Regt. Drs. Wilkie and Goodeve, and several other gentlemen deserve a similar acknowledgment.

Gya, Behar, 23*rd June*, 1834.

CASE OF BERI BERI,

WITH

PATHOLOGICAL REMARKS.

By J. MOUAT, M. D.

Presented December 7, 1833.

Much obscurity and uncertainty involves the history and nature of Beri Beri, as described by oriental authors. The following case, apparently throws some light on its *pathology*; and indeed, if confirmed hereafter, will shew the inosculating link, which connects together affections, hitherto considered distinct maladies. It is therefore hoped that the pathologic interest of the inquiry will be a sufficient apology for bringing it to the notice of the Society.

Case.

June 2nd, 1833, at 1 p. m. was admitted into the Hospital of the 13th Dragoons, Serjeant Luke Hopwood, of that corps. He was 44 years old, had been 14 years in India, was a stout, healthy-looking man, though long subject to dyspeptic complaints, and is supposed to have drank hard. He had been in Hospital with Gastritis, 30th June, 1832. Dyspepsia, 16th August, 1832; and Cholera Morbus, 16th

February, 1833. He was on admission affected with severe pain at the epigastrium and stomach; which appeared swollen and tense, with acute pain on the slightest pressure, constant vomiting, and the stomach rejecting every thing; also pain across the eyes, which were heavy and suffused. Can assign no cause for his complaint. Was taken ill at eight o'clock this morning, and has had two watery yellow stools: pulse full and frequent, skin natural, tongue foul. He was actively treated for Gastritis, by repeated bleedings, leeches frequently applied to the region of the stomach, purgatives and saline medicines, and he became pretty strong and well, with the exception of being dyspeptic, also pain occasionally about his stomach, and a constantly relaxed state of his bowels, which were either watery or at times slimy and green, and from six to 12 evacuations in the 24 hours. His pulse continued quick, his respiration hurried, and his appetite bad; and the tongue red or florid. It would be tedious to give the daily reports as detailed; therefore, we shall merely give the varying changes, as they were noted during the progress of the malady. On the 10th he felt his head giddy, when he stooped; on the 19th and 20th, complained of want of sleep, and appears distressed; 21st, had some rigors, with febrile excitement; 23rd, all appetite for food gone, but was thirsty (which was noted during the whole of his disease), and he continued in this fluctuating state, sometimes fully better, occasionally a little fever at night, and still purged from four to ten times in

the 24 hours, with the quick soft pulse, and red tongue already noted, till about the middle of July, when on the 18th, he first complained that his legs swelled towards night, that he felt them weak; that they ached and gave him much pain; that he had only perceived it a few evenings; and they pitted slightly on pressure. However, a slight bleeding, with purgatives, diuretics, &c. relieved him, and on the 31st, it was reported, swelling nearly gone, but still some pain in limb (now only the left leg), which for some days was the principal complaint. On the 10th August, however, the left leg again began to swell, and continued increasing, with great pain in the whole limb, from the foot to the hip, also some fever, and he represents the pain shooting from the ankle to the groin; no redness or discoloration.

On the 18th, complained of his foot being dead, and cold; that he had no sensation or feeling in his foot, and little or no rest at nights; that he was unable to walk, and could scarcely put his foot to the ground.

On the 23rd, some soreness at epigastrium, and dyspnœa; became low and desponding, with great pain in the whole leg, and no feeling in the foot, even when pinched from below the ankle and instep to the sole of the foot; 24th, leg and thigh very painful, and much swelled: the swelling extending to the trunk, not discolored, and slightly pitting on pressure; 26th, great pain

in leg, with swelling, hardness, and pain in the sheath of the femoral vessels now first perceived on examination. Pulse very quick, perspired greatly, diarrhœa still continues, and he feels his foot cold and senseless, though it has all along appeared to his attendants warmer than natural. 28th, seems better, leg easier, but still very painful, and says he cannot keep it warm, though it is evidently above the natural temperature. He continued much in the same state till the 31st, when the leg became easier and less swelled, but still with the sensation of coldness in his leg and thigh, and want of feeling in instep and toes.

On the 5th September, much the same, but that the pain shoots from the foot to the groin, apparently along the course of the great vessels and nerves, and the tenderness remains in the course of the vessels; 10th, the foot now getting sore, instead of insensible, which he attributes to a warm bath he had last night; 11th, more feeling in foot, and pulse more regular, but says he has little or no rest or sleep; 12th, feels more pain and coldness in leg; 13th, feels the limb cold and stiff; 14th, no rest, which seems very distressing to him; 15th, leg pained, foot feels dead and cold, and no sleep for a long time; very little swelling or tumefaction; 18th, better, limb feels warmer, but in the evening again complained of pain in foot extending to the groin, and feeling of coldness in foot; 20th, feels his foot sore; 21st, toes of both feet feel cold and dead; 23rd, leg up to the knee feels dead, and he is desponding; 24th, delirious at

times, faulters in his speech, his movements are spasmodic; 25th, leg feels stiff, passes his stools in bed, and appears getting paralytic; he can scarcely protrude his tongue, and has great faultering in his speech; 26th, leg feels cold, still pain in foot, and has spasmodic twitches or convulsions when he moves or speaks. He continued in this state, and getting worse till the 28th, when he was reported greatly reduced and sinking; 29th, restless, and at times delirious, speech gone, though sensible; 30th, dozes, and is convulsed at times.

1st October, getting worse, tremulous, and convulsed, he gradually sunk, and about 12 o'clock at noon expired.

It may here be observed, that, through the whole course of the disease, the tongue was more or less red, the bowels relaxed, the stools either watery, and generally green, or muddy and even pale and slimy. The countenance and eye distressed, and the respiration quickened or oppressed, with much restlessness, weakness, and great want of sleep. The swelling of the diseased limb was always pale, and only slightly pitted on pressure; never very tense or hard, always sore on pressure, and warm to the feel; pulse nearly the whole time quick; latterly very feeble.

He used the usual variety of diuretics and diaphoretics, also colchicum, nitrate of potass, al-

terative doses of calomel, blue pill, and pulv. antimonialis. The decoction of sarsaparilla, opiates, the sulphate of copper, the sulphate of zinc, and quinine, with tonics, wine, beer, hot baths, and fomentations, &c. during the progress and various periods of the disease.

Dissection, four hours after death, with the assistance of Dr. Clark and Mr. Everett, who have drawn up the following statement of the appearances observed.

Body, rather emaciated, but internally much more loaded, than could be expected, with fat.

Head: membranes of the brain of a natural colour; brain rather firm in consistence; ventricles contained a small quantity of serous fluid, with about six drachms, at the base of the cranium.

Thorax: healthy throughout.

Abdomen: liver somewhat larger than natural, of a light colour and granular, as is often seen in dram-drinkers, with an old adhesion at the upper and posterior part to the diaphragm; pancreas, enlarged; spleen and kidneys, healthy. The cavity of the abdomen contained a few ounces of serous fluid.

Considerable disease in the venous system, particularly of the left lower extremity ; femoral and external iliac vessels of right side, rather smaller than what is generally observed, but those of the opposite very much contracted. The artery appeared much more diminished in calibre than that of the right side. The femoral vein was very small, and in several portions was nearly obliterated, by being plugged up, apparently by an organized substance in layers, adhering to the vessel, of a brown ochry colour, very similar to the substance observed in aneurisms, where nature attempts a cure. The femoral vein was diseased to about six inches below Poupart's ligament, and extended into the external iliac to about an inch below the formation of the inferior cavæ, and this portion seemed flaccid and contracted like a piece of tape. The lower portion of the cavæ also seemed smaller than natural ; at the junction of the external and internal iliac, there was a clot formed, but not organized. The vessels were closely united together, and enveloped in a quantity of brain like fat, a good deal of which appeared in various parts of the body. The internal coat of the femoral vein in parts, was thickened, in others, as if inflamed. The interior of the arteries presented nothing remarkable, and the dissection was not made more than 9 or 10 inches down the thigh, but minutely to the heart. Dr. Clark has kindly made a preparation of the parts, which we have carefully preserved in spirits.

Remarks.

To point out the affection, which is most nearly allied to the disease, just detailed, becomes most interesting. It will, however, be perceived, that the case possessed too many of the symptoms usually considered pathognomonic of the Beri Beri of this country, to be separated from that peculiar and distressing malady. Again, if the inquiry is pursued, the disease bore nearly, if not all the characteristic distinctions of Phlegmasia Dolens, as detailed and illustrated by Dr. Robert Lee, in his valuable papers on that subject*; indeed so far as a solitary case can confirm, the dissection in this instance, would tend to the supposition, that these two diseases, if not identical, are, at least, so nearly allied, as entitle them to be classed under the same head, though, perhaps, different in species.

We may therefore be excused pursuing the parallel, since the interest of the inquiry may justify a prolixity of detail, in the endeavour to elucidate a disease, the nature of which is so obscure as Beri Beri, and though future observations should disprove its connection with Phlegmasia Dolens, yet will it tend to establish, and which is very important, a general constitutional disturbance, accompanying or arising from a local affection, analogous to the latter disease, agreeing with it in its progress, general history, and pathology,

* Vide Cyclop. Prac. Med. Art. Phlegmasia dolens, and Med. Chirurg. Trans. vol. 15th, part 1st.

though it is to be presumed, excited by a totally different cause.

There is, however, much difficulty in the present state of our knowledge to determine how far the structural derangement observed in the circulating system, was the only cause of the various symptoms observed in Serjeant Hopwood, or if they might not occur in connection, and be characteristic of derangements, in which other textures were principally affected, since we know comparatively so little regarding the diseased phenomena exhibited by the vascular system, that our conclusions under such circumstances must, in a great degree, be conjectural, inasmuch, as we do not possess the means of separating the predisposing phenomena, or deciding otherwise than by analogy. It will however, be found, that the pathological appearances in our case, in reference to the state of the iliac and femoral veins of the diseased limb, will give rise to all the phenomena of Phlegmasia Dolens in puerperal women; such a severe pain shooting into the thigh and leg; numbness of the whole extremity; great uneasiness or pain occasioned by pressure; pain along the inner surface of the limb; tumefaction either tense or pitting on pressure, without discoloration; and the limb hot:—a hard cord felt below Poupart's ligament, very sensible and traceable down the thigh, in the course of the femoral vessels; great irritability and prostration of strength; the nights spent without sleep;—constant diarrhœa, and

hectic symptoms; and, as Mr. Burnes aptly describes it "to consist partly in inflammation, and partly in nervous irritation, producing, both pain and a temporary species of palsy."—Moreover, Dr. Lee has fully demonstrated that inflammation, obstruction, or obliteration of the iliac and femoral veins is the invariable result. That those vessels may be thickened, contracted, and obliterated, either with a soft coagulum disposed in layers, which adhere to its inner surface, or a brownish ochry-coloured tenacious substance. The whole therefore of Hopwood's case bears the closest parallel, and strongest similitude, with the foregoing detail, principally taken from Dr. R. Lee's admirable paper.

If a similar comparison be made with Beri Beri, we shall find its characteristic phenomena in every respect as intimately resembling the Serjeant's disease.—Since the spasmodic symptoms, the shooting pains, the state of the respiration and voice, the trembling and weakness of the limb, the œdematous intumescence, the great torpor of the nervous and absorbent system, the state of the frame, weakened by previous sickness and habits of indulgence, the painful numbness, the shooting pain, the loss of motatory and sensific power, and even the general paralysis at its close with the faltering speech, spasmodic or convulsive twitches, the irritable restlessness and anxiety, were all observable, and more or less developed. Indeed, if we pursue the history, we shall

find it analogous even to its anomalous nature, in the great diversity of symptoms, and also originating with Gastritis, which has been enumerated as a frequent precursor of the complaint. So that, it might be said, with very little assumption, in the words of Dr. Farrel, making due allowance for his views on the subject, that it was "a disease of exhaustion and debility, occurring chiefly in persons of intemperate habits, and labouring under other maladies"—for his account of Beri Beri would apply to Serjeant Hopwood. Nay, more if we follow Dr. Dwyer, we shall find his description almost an echo of our case. He observes, and we merely cite, from a quotation in Mason Good: "The more prominent symptoms were numbness of the extremities, muscular power greatly impaired, walking attended with a considerable degree of unsteadiness, pain, tottering, and weakness of the joints; such instability of gait as resembles a person walking on his heels; sometimes paralysis. In the latter stages of the disease, when the thorax becomes affected, increased uneasiness in the epigastrium and vomiting succeeded; dyspnœa and all the symptoms of hydrothorax." In fact we have as perfect an identification, as could be expected in so complicated and varied a disease—and as we have already shown the close resemblance to Phlegmasia Dolens, both in its symptoms and pathology; will it be too much for us to say, giving as we do but a solitary case in illustration, that these affections are analogous, if not varieties of the same disease.

From a cursory glance at the varied phenomena observed in connection with the diseased state of the blood-vessels, there appears a strong presumption, so far as our knowledge extends, to consider Beri Beri, as one of the diversified anomalies, which more or less intimately assimilates the endless variety of morbid actions generally arising in a cachectic frame, and so often observable in phlebitis, cellular inflammation, certain kinds of puerperal and irritative fevers, phlegmasia dolens, the effects of some poisons introduced by the circulation, certain dropsical effusions, &c. &c. &c. all of which, however distinct in their origin or diversified by the immediate exciting cause, give rise to the infinite variety of symptoms, in the extensive association or implication with the various tissues, and the whole of the functions; yet all of them bearing a general chracteristic stamp in the similarity of violent irritation, and constitutional disturbance, with which they are attended.

We had an opportunity of extensively witnessing Beri Beri in 1824; apparently, as a sequela to the diseases then prevalent in the army on service at Rangoon, a place considered by those acquainted with the climate as very healthy; therefore, the great sickness and frightful mortality amongst the troops, must have been caused by fatigue, excessive harassing duty, constant exposure to the heavy rainy monsoon, always experienced on that coast, miserable accommodation,

and the most wretched, insufficient, and unwholesome diet.

Such circumstances may naturally be expected to modify disease, in an especial manner ; as well as to give rise to a peculiarly deranged habit of body, as was, indeed, evinced by the general scorbutic taint, at one period, so prevalent. Though acquainted with the general characters and appearance of the disease, yet the importance of examining the morbid changes in the blood-vessels did not then occur. It was however observed, that the pain and distressing sensations of the disease at Rangoon were by no means commensurate with the extent of the anasarcous swellings, and death was generally sudden, and often took place as the dropsical symptoms were subsiding—indeed such was the event in a late case of an old soldier, who died under the head of anasarca. He was admitted with diarrhœa succeeding a debauch, and when convalescent, symptoms of anasarca suddenly appeared, with stiffness in his lower extremities, the legs powerless, much rigidity of the muscles of the limb, the knees contracted, and any effort, to straighten them, could not be borne, from the anguish it excited ; which with the dyspnœa and swellings, gave it most of the characters of Beri Beri. He died suddenly, when the swellings were subsiding. The vascular system was not examined*. There was no disease in the

* He died a short time before Hopwood.

head ; about two pints of red-coloured fluid in the chest ; two ounces of a yellowish serum in the pericardium ; and ten pints of a green fluid in the abdomen.—The only change of structure, was seen in the transverse arch of the colon, it being extremely thin and transparent, and marked with several large black spots, of the nature of Melanosis.

After all, the vascular derangement which was observed in Serjeant Hopwood, may not always exist to the same extent, since even in him the slight contraction of the vessels in the sound limb would have escaped notice, had not those of the opposite one been so extensively diseased and altered in structure as to call attention to their state.—It is, what we know takes place in the brain and nervous system, where it is often difficult to trace any morbid change after death, though the symptoms during life leave no doubt of their having been the seat of the complaint. Therefore, it is not unlikely that structural changes of the vessels may only appear in certain well marked cases of peculiar violence and long standing ; but yet sufficiently often to lead to the inference, of what may probably take place in other instances, where it can be shewn to give rise to the phenomena of the disease ; and hence the value of not only minutely noting the symptoms in all obscure maladies, but the alteration of structure after death :—at any rate the inquiry will be important in the affection under consideration,

as tending to fix and limit the boundaries of a complaint not only little understood, but obscure and confused in its history and pathology, and where medical opinion is as various, as the authors, whose descriptions we possess of the disease itself.

Of Mr. Malcolmson's observations on Beri Beri, we know no more than the flattering testimonials just issued in the Government orders, as to their merits and value.

Bangalore, Oct. 1833.

SOME ACCOUNT

OF

THE FEVERS WHICH PREVAILED IN CALCUTTA

IN THE YEAR 1833.

By W. TWINING, Esq.

Presented April 5th, 1834.

In the following statement, I will endeavour to comprise the more important circumstances relative to the Fevers which prevailed in Calcutta and the vicinity, during the hot season of 1833, and from that period up to the end of the year, as far as relates to my own practice and experience.

An unusually oppressive hot season, more particularly during the months of April and May, was productive, at that time, of no remarkable increase of sickness in Calcutta. There were, however, several cases of determination of blood to the head, threatening Apoplexy, but unconnected with fever;—they were ascribed to the high temperature, and extremely oppressive state of the atmosphere. A considerable number of catarrhal fevers then occurred in adults, in which, affections of the mucous membrane of the throat were severe, oc-

casioning much hoarseness, and in some cases suppression of the voice: there was also pain and stiffness in the muscles of the neck, with some oppression at the chest; and several of these patients had a red efflorescence over the whole skin, on the 2nd or 3rd day of the fever. These cases did not require blood-letting,—but were safely treated by mild aperients, and antimonials; with rest, and restriction for a few days to a diet of tea and bread. At the same period the common inflammatory fever frequently occurred, and its worst cases appeared among those who were exposed to distress, fatigue, and privations, during the gale of wind and inundations which happened about Diamond Harbour and the vicinity, on the 22nd of May. The local affections attendant on these fevers were for the most part referrible to the head and stomach; in some cases acute inflammation of the liver was present,—and affections of the spleen were observed during the course of the disease, but more especially towards its termination. In many of the patients with this description of fever, the tongue was at an early period of the disease, dry, much loaded, and occasionally of a brownish tan-color. In the treatment, free use of the lancet, was requisite, and on some occasions the bleeding was repeated within four hours, with much benefit. There was not often occasion to take above 20 ounces of blood, at the first time, and ten or 16 ounces on the 2nd: most of these patients had the head shaved. In some of them, a degree of morbid heat of head and other symptoms indicative of continu-

ance of cerebral affection, required the application of leeches once or oftener, to the temples. At the commencement of this treatment, namely, in two hours after the 1st V. S., the bowels were freely purged by a dose of Jalap or Senna and Salts; and from 6 to 12 grains of Calomel or the same quantity of Blue Pill, with 4 grains of Antimonial Powder were given at bed-time, and a moderate dose of Jalap, or Senna Mixture next morning. When much morbid heat remained after blood-letting, the cold affusion, used at an early period of the disease, often produced a most favourable change, allaying morbid heat, and diminishing the frequency of the pulse; sometimes the repetition of this remedy was requisite in two or three hours. I disapprove of cold washes continually applied with cloths to the head; they cool the exterior and diminish the circulation on the surface, but they prevent a perspiration on the forehead, which when it exists usually alleviates internal congestion, and is often the forerunner of general moisture of the surface. I have too often seen the head and pillow kept wet, much to the injury of the patient, even when mercury was given in large doses. The transient employment of cold affusion to the head, by directing a small stream of water from a height, in such manner that it shall fall on the head, but the patient's bed shall not be wet, is often of advantage. This remedy need not be continued long at a time: and must be considered as an adjuvant to depletion, but not as a substitute for it. The effects of affusion of cold water on the head, after

adequate venesection, are, to diminish morbid heat of the head, and to subdue the remains of inordinate arterial action of the brain. When this remedy is found useful, it may be repeated at short intervals, if dry heat of the forehead should return. When employed in the early stage of ardent fever, and soon after blood-letting, this is frequently a remedy of considerable efficacy in assisting to remove active congestion of the brain.

In other cases the symptoms of gastric affection were predominant, and morbid tension at the præcordia, with pain on pressure, attended by sickness and vomiting, required, besides the use of the lancet, the frequent application of leeches to the region of the stomach; and after the arterial action and morbid heat were subdued, a degree of irritability of the stomach occasionally called for the employment of a blister. In those cases, in which gastric affection was predominant, the frequent use of drastic purgatives was avoided, and after the bowels had been thoroughly emptied by an effectual dose of Senna Mixture or Jalap, mild aperients were ordered only when any evidence of accumulation in the bowels existed: and when enemata could be made to procure evacuations, other means were avoided. Under the existence of much gastric irritability, the frequent employment of strong purgatives is apt to produce flatulent distension of the belly, to increase gastric irritability, and not only to fatigue the patient by causing frequent efforts

to rise to stool, but sometimes repeated watery evacuations, especially after saline purgatives, are apt to be followed by dangerous exhaustion, more or less allied to the collapse of Cholera. It happened not unfrequently, that a tendency to diarrhœa existed with the first symptoms of febrile affection, and then more particularly, the object was to subdue inflammatory action without increasing gastric or intestinal irritability.

From about the middle of July to the end of October, a different form of fever prevailed, and we had most ample opportunities of observing the *Remittent Fever of Bengal*, in a greater number of cases, and with its peculiar characters, more exquisitely marked, than I have seen it for many years past. This fever, at its accession, varied much: some degree of rigor occurred once at an early period of the disease, in a considerable number of patients; in many cases, the attack was sudden, and on the first or second day of a patient's illness, there was no doubt of the dangerous character of his complaint. Excessive reaction appeared at the commencement of the paroxysm, with very great determination to the brain; the eyes became blood-shot, the forehead hot, and the countenance swollen. The exacerbation generally began before nine o'clock A. M., reached its acme soon after 12, and was then followed by a corresponding prostration of vital power; with profuse perspiration, coldness of surface, and rapid weak pulse: the coldness in some cases went

on increasing, and terminated in death. In the majority of cases of Remittent Fever of this season, the tongue was moist, nearly clean, and sometimes appeared pale and swollen. Distinct symptoms of inflammatory affection of the liver were very rare; but towards the decline of the fever, in debilitated patients, an enlargement of the spleen, with its corresponding constitutional disorder, was frequently seen; and in a few instances, there was a high degree of gastritis. In this season I did not observe more than one paroxysm in the 24 hours; and there was only a small proportion of cases in which the exacerbation took place in the afternoon or night. The most remarkable circumstance connected with this form of fever, was the extreme degree, but transient nature of the determination of blood to the head. Although the paroxysm was not of long duration, the effect of each return of pyrexia was in general evident in the more severe cases, each paroxysm leaving a more permanent cerebral disorder than previously existed, and being followed by more decided prostration of strength.

In the treatment of the Remittent Fever of 1833, the greatest vigilance was requisite, not only to employ active remedies, but to use them at a proper period;—for instance, V. S. proved of the utmost benefit, if employed at an early stage of the disease, and at a time of the day when the febrile symptoms (more particularly the morbid

heat, and reaction of the heart and arteries) were increasing in violence; but, dangerous or fatal consequences are liable to occur, if blood-letting be indiscreetly used, when the reaction is declining, and the pyrexia subsiding, and after free perspiration has existed for some time. Even the application of leeches, when the paroxysm is on the decline, is liable to be followed by prolonged faintness and fatal prostration of strength; and I am certain that strong purgatives have occasionally done irreparable injury, when used at such period of the disease. With a due degree of caution as to proper time in the use of depletion, and active measures generally, I may state, that in my practice, the greatest benefit was observed to follow the early use of the lancet. The desired effect was almost always produced by one bleeding; after which, the application of leeches to the head or epigastrium, at that time of the day when the morbid heat was increasing, was found sufficient to remove local congestion.

I would here wish particularly to notice the importance in all cases of Remittent Fever, of bleeding the patient in the recumbent posture, and if possible, to avoid inducing faintness. It is not less requisite in the severer cases, to prevent sick persons from rising to stool; especially towards the termination of the paroxysm, when profuse perspiration has taken place, and tendency to collapse is impending.

The abstraction of blood at the commencement of the first or second exacerbation of remittent, was invariably of benefit ; it seemed to insure an early convalescence, and safe termination of the disease : but at later periods, unless indicated by a high degree of arterial action, or distinct symptoms of local inflammation, blood-letting was a doubtful remedy. The remote benefit, which is derived from V. S. at an early stage of these fevers, is very important, as visceral disease and obstructions are rare in those who are bled soon after the accession of the fever.

As soon as the violence of the pyrexia began to abate, it was requisite to have the sulphate of quinine in readiness, and when the fever had subsided, to administer two grains of that remedy every second hour for four doses; and in the more intense forms of the disease, to give a dose of four grains of that medicine at seven o'clock on the next morning, and to repeat it at eight, for the purpose of anticipating and preventing the accession of another paroxysm; whereby, the dangerous consequences liable to occur from effusion or inflammation at the commencement of a paroxysm, or from collapse at its termination, were all avoided.

I would speak of purgatives, after the due employment of depletion by the lancet, and the use of quinine : for life often depended on the management of a single paroxysm by those means. The

administration of purgatives was in all cases indispensible: calomel or blue pill and compound extract of colocynth appeared to answer best, due care being taken to avoid as far as possible the use of mercurials in cases where the spleen was enlarged.

When there was much anxiety and prostration of strength, with sense of lowness and exhaustion at the præcordia, on the subsidence of a paroxysm; the application of a synapism to the epigastrium for an hour was in general attended with the utmost benefit; and in all cases where local inflammation did not exist, some farinaceous food was requisite at that stage of the disease. Sago in very small quantity, with some wine, was usually preferred; a dessert spoonful of sherry, with a wine glassful of sago, given in the intervals of the doses of quinine, were in general sufficient. It is surprising in these cases how little food will answer all useful purposes, if it be given at the proper period.

I would beg leave to say a few words relative to those severe cases of continued fever, as well as remittent, in which active treatment was not commenced early, or where from particular violence of the disease, local inflmmations and congestion could not be subdued by the lancet, aided by leeches and purgatives. A degree of local disease of the most dangerous nature is then liable to take place. I allude to the sero-albuminous effu-

sions from the capillary vessels, which take place between the tunica arachnoidea and pia mater, at the top of the hemispheres of the brain, as well as at its base, and in the spinal canal between the arachnoid and dura mater. Similar effusions also occur at the root of the mesocolon, and in the cellular structure about the duodenum. These effusions sometimes seem to coincide with the natural subsidence of active pyrexia, and a material change in the patient's condition; which change is of an unfavorable character, and too often proves the precursor of death. In those cases, when the effusion has taken place in the cellular structure about the duodenum, or at the root of the mesentery or mesocolon, there is usually much anxiety, and prostration of strength, with some fulness of the belly. When the cerebral effusions occur, there is more or less of stupor, and indifference; although the patient often answers questions correctly: he lies on his back, with the limbs stretched straight, or he slides towards the foot of the bed; the face is often pale, and the pulse slow and soft, or the cheeks are slightly flushed, and the pulse quick and weak; the pupils are usually small, and the morbid heat moderate, if not subdued. In the latter stages, the hands are often put forth to grasp some imaginary object. When a patient is approaching the state above described, the only chance of saving life is by the free administration of mercury; if the patient be not already salivated, 12 grains of calomel, or the same quantity of blue pill are to be given three times a

day, and if any degree of morbid heat remain, four grains of antimonial powder are to be added to each dose. If there be not a free stool once a day, it is requisite to give a small dose of jalap, with cream of tartar, once in 36 hours; but if there be little or no morbid heat, and a watery purging exist, it is often necessary to combine some opium, or some hydrarg. cum creta, with the calomel, and to use mercurial frictions. Small quantities of cream of tartar and sp. æther. nitros. added to the drink, are also often of service by acting as diuretics. In these cases the frequent administration of purgatives is injurious, by preventing the due action of mercury; and active purging is apt to bring on a tympanytic state of the belly, which must be regarded as a most dangerous symptom, when induced by purgatives at this stage of the disease.

Speaking from my own experience of the fevers of 1833, I would say that the deaths which took place were principally owing to improper or injudicious management of the patients themselves, after convalescence was far advanced. The fatal cases from this cause occurred more frequently among the foreign sailors, than any other class of people. The hospital charges which captains of ships have to pay, induced them often to remove their sick prematurely, when they hoped that ordinary domestic care, and a few days rest, would be sufficient during convalescence. The consequence was, that many of those poor people had repeated relapses of fever; some of them returned

to hospital three, or four times, and it was principally among them that the fatal cases occurred :— a few died during the stage of pyrexia, from determination to the head ; but many more were carried off at protracted periods, by diarrhœa and diseased mesenteric glands, or other chronic visceral disease. Some cases only came under treatment after they had fallen into a state of stupor from effusion of blood into organs or structures important to life.

Those cases of fever which came under treatment at an early period of the disease, and for which V. S. was promptly and freely used, recovered quickly. In several instances of patients admitted on the eighth and ninth day, and in one instance, so late as the 15th day of fever, the lancet was used with most decided benefit. At the same time, let me confess, that free abstraction of blood at those late periods of fever, requires the utmost caution ; and in many cases, where nothing else can save life, there is much hazard in using this most powerful remedy. The patient must, in such cases, be carefully watched, and every accessary remedy, such as early use of quinine and judicious administration of food and wine, must be used in proper time. In these cases, life depends on promptitude and discrimination in the administration of these important adjuvants, quite as much as in the previous use of the depletion, which in fact renders them efficacious.

Soon after the beginning of November, a decided change was evident in the character of the fevers which occurred. For some time before this, cases of the worst kind of remittent fever had become rare; and, as usual, the commencement of northerly winds, foggy mornings, and a lowered temperature of the atmosphere at night, were attended with intermittent fevers: tertian being the prevailing type. Local visceral affections were certainly more strongly marked in the agues of this season, than I have usually observed in former years: and affections of the spleen and lungs were much more frequent than they have happened formerly. On the treatment of the intermittent fevers of this season, I have only to observe, that the cure has been tedious, and relapses frequent, in the ratio that visceral disease has been extensive and obstinate. The necessity of repeated local and general blood-letting has been more apparent than formerly.

I have omitted speaking of the causes to which the fevers of 1833 could be attributed; wishing that the series of diseases which we had occasion to observe should be first described, and the periods stated on which they respectively occurred. There appears very little reason to doubt that the increase of sickness, and the prevailing diseases at Calcutta and its vicinity in 1833, were much influenced by the unusually high temperature of the hot season, and the inundation which occurred between

this place and the sea at the time of the gale on the 22nd May, whereby numbers of the inhabitants and cattle were destroyed, the cultivation ruined, and extensive districts rendered unhealthy. The influence of these causes was slow in reaching the inhabitants of Calcutta, but those persons who were exposed to the distress incidental to the gale, and inundation at Diamond Harbour, came to the Hospital in a few days after its occurrence, and I believe almost all those who were stationed within the range of that inundation suffered early and severely. A succession of patients from the ships that had been exposed, or wrecked in the course of the gale, crowded the wards of our Hospital for many months. When the rainy season came on, the gradual approach of the formidable Remittent Fever, among the inhabitants of the neighbouring villages, gave warning of what was about to happen in this city. It is needless to relate at this day, the alarming extent of the sickness which prevailed in July and August last; it is too well remembered by every one.

Besides the causes of disease arising from malaria generated by the inundation, and high temperature, natives were exposed to the evils of famine in those districts where the cultivation was destroyed: and they also suffered from want of good fresh water, as their tanks were overflowed and filled from the sea, the water being rendered brackish and unwholesome within the range of the inundation, for the whole year. The effects of a conta-

minated atmosphere, and the influence of general causes of disease, were strongly manifested by the manner in which fever spread among the more wealthy natives in Calcutta and its vicinity. The number of young persons in this class of inhabitants, particularly those between 18 and 30 years of age, who suffered from the prevailing fevers, was very remarkable.

Calcutta, March 25, 1834.

OBSERVATIONS ON DRACUNCULUS.

By A. DUNCAN, Esq.

Presented July 5th, 1834.

Nharoo abounds in Bhewndy and the neighbouring villages. A single native regiment is located there. It appears that on their first arrival, the men are but little, if at all, afflicted with it; that by the end of the second rains the cases are numerous, and by the third, the number is still further increased. Whether this increase is indefinite I know not. But I was informed of a singular or, at least, of a most curious circumstance, viz. that at one period, the disease wholly disappeared, and again, after a few years, to the dismay of the inhabitants, it reappeared. For the truth of this statement, I cannot vouch; but it was circumstantially detailed to me, and it merits investigation.

The plans of treatment adopted by the natives may be divided into two. The one consists in aiding nature to eject the animal. The other in the use of acrid applications for the purpose of

destroying it, which plan is usually productive of severe ulceration, and not unfrequently, when applied to the vicinity of a joint, causes permanent lameness, and in no case that I have seen, has it been in the slightest degree beneficial.

The treatment I have adopted is also of two kinds, (in reality the one is but a modification of the other.) First, the gradual extraction from the opening, at which it has appeared, aided by such means as diminish inflammation generally and locally, and using friction over the site or tract of the worm, which in a great many cases can be discovered. I was taught to await the bursting of the vesicle which precedes, generally, the appearance of the Nharoo: latterly, I doubted the propriety of this delay, and opened a number of them early, and I am of opinion that as many may be laid hold of, or even a greater number by the latter, than the former mode;—open the vesicle thoroughly and quickly, look well in, and you will see something that is neither skin, nor cellular texture; thrust a fine forceps in, lay hold of it, and gently pull it forward; it is the Nahroo.

But it has appeared to me, that a more preferrible mode of treatment, when the run of the Nahroo can either be seen or distinctly felt, is to cut down upon it, and pull out as much as possible at one attempt. By patient and continued gentle pulling, aided by friction over the site of the Nharoo, sometimes the whole, always a considerable portion of

it can thus be extracted. And it is of importance to effect as much as possible at the first attempt, because in a majority of cases it is followed by a degree of inflammation which prevents, or nearly so, further extraction for several subsequent days. In a subsequent part of this paper a modification of this mode of extraction will be noticed, by which its being imperfectly performed, would appear to be a most decided improvement. It depends on the natural history of the animal.

I have heard the Nharoo was filled with living young ones. That a knowledge of this fact is not coeval with the use of magnifying instruments in the hands of those who are conversant with the disease, is an instance of the slow progress of human investigation. I did not apply a microscope for the purpose of examining the matter, till I had heard of this; and when I did, I was astonished—the white matter filling the inner tube like thick cream, is a mass of living young ones. It requires dilution to permit them to be distinctly examined. They are very lively.—I measured many of them, and found them to be about the 57th part of an inch in length, somewhat like in shape to the tadpole of a musquito, but *much*, very *much* smaller, and more slender in proportion to their length: fully a third consists of a fine extremity like a sting; they swim after the head, but can fix their slender extremity to an opaque substance, and work the body to it. They have a dark line, in some two, running along the length

of body; I suspect it is always two, but approaching so near, that from their rapid motion I could not always make it out. When disturbed they coil themselves up as a snake does, and lay as if dead for a short space, and then cautiously unrol themselves, and begin to play again. I have now a number on a microscopic examining glass in a dry state. The water of dilution was allowed to evaporate, and they of course died.

Out of, I think, two Nharoos, the young ones had double tails, which they separated and reunited with great rapidity; in the latter state it appeared exactly as one, these were rather thicker in the body than the other. I took for examination Nharoos which I extracted by excision, or by the slow method, (in the latter case they were often dead;) or a quantity of the white substance that oozes out of the end of the Nharoo when it spontaneously makes its appearance. That white substance is, as I have said, a myriad of young ones.

An improvement in the treatment may, I think, be found when a sound part of the worm is cut upon. I happened to wound the outer coat, the inner coat was then propelled with considerable force until several inches came out, and by very gentle, but continued measures, I succeeded in extracting it entire; and the wound healed up, and nothing further came away. I tried the same method again by design, and the same result fol-

lowed, more than once. This is a clear proof of the irritation following the breaking of the worm being caused by the contents of the inner coat, i.e. by the numerous young ones, and every thing I have witnessed, leads me to the same conclusion. I have known a limb swollen, and after hard walking, the swelling disappear, and an abscess form. I have opened the abscess, taken out the Nharoo; if entire, the abscess healed as in any other case; if not, then was it tedious. I also make no doubt of the young ones growing to maturity in the body.

The conclusions to which I have come on the subject of Nharoo are, 1st, That when the time of producing its young has arrived, it then exerts itself, to get out of its nidus.

2nd. That the young are capable of fixing themselves to an appropriate substance, and working themselves into it.

3rd. That the period of growth from the animal's birth to the procreation of its young is somewhere about 12 months.

4th. That the irritation produced by a broken worm is to be mainly attributed to the young ones. If it be said, that it is extraordinary that of such a multitude of young ones so very few should live in the human body, I can only admit the fact, and conjecture that the chief cause

of their destruction is the excessive suppuration caused when a number of them escape internally. I have examined the purulent matter of many of these abscesses, and found the young animals sufficiently plentiful in it, but I do not know that I ever found any alive, or at any rate I found none in the lively state they exist in other circumstances; hence I suppose pus is an improper vehicle for them to live in, and that the extensive suppuration is a mean to prevent their excessive multiplication in the body, and when externally, the parts around are in a state of inflammation. But whether this state is an improper one for them to penetrate, I know not; it is however, I have some grounds to conclude, not at all unfrequent for Nharoo to succeed Nharoo, though the length of time which elapses in its growth may make it doubtful in very many cases whether it is the produce of the last one or received externally.

I have had multitudes of these creatures alive in water for six days; the majority of them however, died before that time, and few lived beyond it; they gradually became dull, and die lengthy and not coiled, as is the case when they die more suddenly. I did not see that any lived for a fortnight. I brought a few in water to the Medical Board one day, to exhibit them there; they were of those that oozed out of (or were expelled from) a worm, in its making its spontaneous appearance. I raised them on a bit of glass, and put them into a phial with water.

After what has been said it is surely supererogatory for me to state, that Nharoo, in my opinion, is a living animal. It has the power of loco-motion, as I have often witnessed. Indeed I have known it occur in more than one case in the living body ; it has been, for instance, quite obvious to the sight and touch, like a cord under the skin, and I have delayed cutting down upon it till the next visit, when it could not be seen, and scarcely discovered with the utmost care by the finger. I have also more than once taken a whole one home wrapped in a bit of paper, and have had it moving about in a tumbler of water for an hour and more. It can be excited to move anew, when it has become quiescent or very sluggish, by alternating the water to rather hot and rather cold. Throwing either a whole one or a piece of one tied at both ends, and wounded, into a clear phial of water, affords an excellent mode of seeing the young ones with the unaided eye, or aided only by the effect of the rounded glass and water ; they are discharged in a whitish stream, and when the force of the ejection is exhausted, they can be seen swimming about in all directions.

It has been said that this animal is separately male and female. Of this I know not ; all the large ones that I have examined have been full of young ones, and the small ones I took to be imperfectly grown.

The very small ones of eight to ten inches, I have only had out of diseased men, and I do not

recollect out of any but those who had been previously affected in the usual way.

If my opinion be correct, that the young animal can work its way into an appropriate receptacle by its pointed extremity, it affords an easy solution to the supposition of Mr. Clot, (and others, and the fact mentioned by him,) that attendants on patients, and also dogs moving about them, get the disease.

Bhewndy is about 33 miles from Bombay, nearly north. The district is on a trap formation. The soil and pools abound in the rains with a worm smaller and more slender, but otherwise exceedingly like Nharoo. I left that place with the Regiment to which I was attached in August last, and it was after my arrival in Bombay that I commenced my miscroscopic examinations. But it would be exceedingly desirable to ascertain if that worm contains similar young ones, if in fact it is the Nharoo or not. I am now at Dapoolie, about 70 miles (nearly) south of Bombay, where this animal is very rare indeed.

I consider Dracunculus affecting a body of people as a very formidable disease. I have known no sipahée die of it; but several so ill that I almost despaired of their lives. But I have known natives in the villages die of it. The difference of case, the necessity of exertion to the one, and the absolute repose indulged in by the other, need not

be pointed out as causes sufficient to account for such a difference of termination. But the tediousness of the disease, the long continued suffering of the patient, and too often the loss, total or partial, of the use of an ancle, or other joint, are evils of great magnitude.

The only mode of cure that can be found, is, I conceive, *extraction of the worm.* If the imperfect mode shall be found as effectual, as on the limited scale I tried it it proved to be, then a great step is gained.

ON EPIDEMIC DISEASES,

WHICH

OCCURRED AT BANGALORE DURING THE YEAR 1833.

By T. MOUAT, M. D.

Presented April 4th, 1834.

Epidemic Diseases are constantly recurring, yet the obscurity which involves their appearance, renders their history at all times interesting. To note the period of the invasion, the phenomena characteristic of the progress, and the circumstances attending the decline of such visitations; together with the state of the weather during their prevalence, will probably, in the present state of our knowledge, be one of the best modes of forming data, to elucidate their future history.

The following detail of two epidemic visitations of sickness, appearing in immediate succession, and extending their career to a period of nearly six months, during the past year (1833), at Bangalore, each forming so extreme a contrast with the other, in its symptoms and ætiology, may possibly possess sufficient interest to merit the notice of the Medical and Physical Society. It is merely a transcript from our official reports, composed as acts of public duty, in the midst of

professional engagements, with few sources of collateral information from medical authors, and therefore necessitated to be drawn up and dispatched at fixed periods, and consequently subject to all the imperfections of documents, completed under such circumstances. But as much of the interest of such descriptions, depends in a great measure upon their early communication, it is forwarded with those claims to indulgence and a lenient judgment.

Meteorological Observations for 1833.

JANUARY.—Cool and pleasant, the entire month: the air bracing and invigorating; the mornings cold and chilly; the days cool, and the evenings pleasant, with cold chilly nights, only a few foggy mornings, and in general a heavy dew on the grass. Wind, easterly or north-east, and during the middle of the day, strong, gusty, and very cold; scarcely a cloud, a few light ones about the beginning of the month. No rain fell during the month.

Corps healthy, but affected with Epidemic Catarrh.

Prevailing diseases, Epidemic Catarrh, with much fever and bronchial disease. No death.

Thermometer in the house.

Extreme range during the month from 67 to 80 degrees.
Ditto ditto the 24 hours, 11 do.
Least ditto the 24 ditto, 4 do.
Average ditto the 24 ditto, $8\frac{1}{3}$ do.

Thermometer outside the house.

Highest when exposed to the sun, 110 degrees.
Lowest when exposed to the weather, 64 do.
Extreme variation when exposed outside, 46 do.
Barometer, from 26°94 to 27°03.

FEBRUARY.—Weather still cool and pleasant: mornings cold; days agreeable in the house, the evenings delightful, the nights cool and even chilly. Sun extremely powerful, and the dust disagreeable; occasionally a light fog in the mornings, and at times a haze. Wind almost the whole month, easterly, at times north-east; light breezes mornings and evenings, but gusty and high during the day; occasionally variable and even westerly; scarcely a cloud the whole month. No rain fell.

Corps healthy. Prevailing diseases, fevers, hepatitis, and dysentery. No death.

Thermometer in the house.

Extreme range during the month, from 69 to 86 degrees.
Ditto ditto the 24 hours, 13 do.
Least ditto the 24 ditto, 6 do.
Average ditto the 24 ditto, 9½ do.

Thermometer outside the house.

Highest when exposed to the sun, 113 degrees.
Lowest when exposed to the weather, 69 do.
Extreme variation when exposed outside, 44 do.
Barometer, from 26°86 to 26°97.

MARCH.—Weather getting extremely hot: sun most powerful, and at times hot, close, and oppressive, even in the house; without, dusty and disagreeable. The mornings still cool and pleasant, and the evenings agreeable; the forepart of the night hot and close, but towards day-break, raw and chilly, with a few hazy mornings. Scarcely a cloud the whole month, and no rain.

Regiment sickly, and cholera prevalent towards the end of the month. Six deaths, one from apoplexy, four from cholera, and one man who shot himself.

Prevailing diseases, cholera, fever, rheumatism, and dysentery; some few cases of variola and varicella amongst the children.

Thermometer in the house.

Extreme range during the month, from 74 to 90 degrees.
Ditto ditto the 24 hours, 14 do.
Least ditto the 24 ditto, 10 do.
Average ditto the 24 ditto, 11¼ do

Thermometer outside the house.

Highest when exposed to the sun, 114 degrees.
Lowest when exposed to the weather, 70 do.
Extreme variation when exposed outside, 44 do.
Barometer, from 26°84 to 26°98.

April.—In general hot and oppressive: the sun very powerful; the air dry, hot and parching, and at times very relaxing. Mornings cool, hazy, and pleasant, but the middle of the day hot; the evenings for the most part warm, and the nights often close and relaxing. There were occasional showers, mostly light and partial, on the 10th, 11th, 12th, 13th, 14th, 19th, 26th, and 27th, which refreshed the air, though very partially, and the whole fall did not exceed one inch of moisture. Wind variable nearly the whole month, for some days southerly, then for some days westerly or easterly, and often varying with the course of the sun, though most frequently from the south or south-west, or west, and even north-west; at times cloudy, and the mornings generally hazy.

Much sickness, and cholera very prevalent; also cases of fever. Eight deaths from cholera, and one from delirium tremens.

Thermometer in the house.

Extreme range during the month, from 76 to 91 degrees.
Ditto ditto the 24 hours, 13 do.
Least ditto the 24 ditto, 6 do.
Average ditto the 24 ditto, 10 do.

Thermometer outside the house.

Highest when exposed to the sun, 114 degrees.
Lowest when exposed to the weather, 70 do.
Extreme variation when exposed outside, 44 do.
Barometer, from 26°83 to 26°84.

MAY.—Another extremely hot month, and though there fell more than three inches of rain, yet it had little influence on the temperature. The mornings were hazy, cool, and pleasant; still the days were hot; sun powerfully oppressive, particularly the first third of the month, but the evenings in general pleasant, with cool nights. The wind, for the first 10 days, south-west or west, and varying during the day to south-east and even east, or north-east; the latter part of the month, pretty regular at west, and very strong and gusty at times. There were thirteen rainy days; pretty heavily on the 4th, 14th, 15th, 26th, and 27th; but the others were only partial showers. Much cloudy weather, or rather heavy passing clouds, with a hot sun and hazy mornings.

Regiment sickly, principally cholera, with some severe cases of dysentery. Six deaths; viz. one remittent fever, two cholera, one anasarca, and two apoplexy.

Thermometer in the house.

Extreme range during the month, from 74 to 91 degrees.
Ditto ditto the 24 hours, 12 do.
Least ditto the 24 ditto, 5 do.
Average ditto the 24 ditto, 9 do.

Thermometer outside the house.

Highest when exposed to the sun, 112 degrees.
Lowest when exposed to the weather, 68 do.
Extreme variation when exposed outside, 44 do.
Barometer, from 26°69 to 26°88.

JUNE.—Much cooler, and pleasanter. The mornings generally hazy and cool; the days cool and clouded; the even-

ings agreeable, and the nights even chilly, or cold. It rained 11 days, and about six inches of rain fell, but generally only partial showers. The sun at times, as the clouds cleared away, very hot, and oppressive. Wind generally high, gusty and very disagreeable, with frequent squalls, and sometimes rain. It varied from south-west to west, and at times, north-west. Moonsoon scanty, and little benefit from the fall, in consequence of the high winds.

Regiment much healthier, only five cases of cholera; but the dysenteries severe, and convalescence protracted. No deaths.

Thermometer in the house.

Extreme range during the month, from 70 to 88 degrees.
Ditto ditto the 24 hours, 13 do.
Least ditto the 24 ditto, 5 do.
Average ditto the 24 ditto, 9 do.

Thermometer outside the house.

Highest when exposed to the sun, 104 degrees.
Lowest when exposed to the weather, 68 do.
Extreme variation when exposed outside, 36 do.
Barometer, from 26°75 to 26°85.

July.—Weather during the entire month cool, but disagreeable, from very high winds, which prevented the fall of rain, except in casual showers. The mornings hazy and cool; the days hot in the sun; the evenings cool and chilly. Except on the 6th and 29th, when about half an inch of rain fell, the showers were too light to be indicated by the rain-guage. Wind in general west or south-west, and often north-west, strong, gusty, and very disagreeable.

Regiment getting healthy, with some severe cases of fever, dysentery, and hepatitis; and the chronic cases, unusually severe and numerous.

Three deaths, one from dysentery, one phthisis, and one aneurism of the aorta.

Thermometer in the house.

Extreme range during the month, from 70 to 80 degrees.
Ditto ditto the 24 hours, 13 do.
Least ditto the 24 ditto, 5 do.
Average ditto the 24 ditto, 9 do.

Thermometer outside the house.

Highest when exposed to the sun, 95 degrees.
Lowest when exposed to the weather, 68 do.
Extreme variation when exposed outside, 27 do.
Barometer, from 26°73 to 26°84.

August.—Cool, pleasant, and far more agreeable. Towards the beginning, the wind was high and disagreeable, but after the 12th, it fell with much rain, and a complete change of climate. The weather hazy or cloudy; the sun obscured. The mornings and evenings chilly, and the nights very cold. Wind generally west or north-west. Some heavy falls of rain on the 15th, 16th, 18th, 19th, 20th, 21st, 22nd, and 24th, and during the month about 8°·3 inches were measured by the rain-guage.

The corps healthy. Fever, dysentery, and liver the prevailing acute affections, with a great increase of venereal affections. Three deaths; viz. one dysentery, one cholera, and one anasarca.

Thermometer in the house.

Extreme range during the month, from 70 to 83 degrees.
Ditto ditto the 24 hours, 10 do.
Least ditto the 24 ditto, 3 do.
Average ditto the 24 ditto, 9 do.

Thermometer outside the house.

Highest when exposed to the sun, 101 degrees.
Lowest when exposed to the weather, 67 do.
Extreme variation when exposed outside, 37 do.
Barometer from 26°73 to 26°90.

SEPTEMBER.—Very pleasant, generally hazy and cloudy; and some heavy falls of rain on the 11th, 14th, 16th, 19th, and 29th, with almost daily light or partial showers; vegetation luxuriant; the weather cold, and altogether most delightful. Wind generally moderate, and south-west or west, and varying to north-west, the entire month.

Sick list moderate, cases mild, but a great increase of venereal cases, forming more than half the admissions. Three deaths, one dysentery and two liver, all of whom had hepatic abscess.

Thermometer in the house.

Extreme range during the month, from 70 to 82 degrees.
Ditto ditto the 24 hours, 8 do.
Least ditto the 24 ditto, 3 do.
Average ditto the 24 ditto, 5 do.

Thermometer outside the house.

Highest when exposed to the sun, 104 degrees.
Lowest when exposed to the weather, 68 do.
Extreme variation when exposed outside, 36 do.
Barometer, from 26°72 to 26°82.

OCTOBER.—Weather cool and pleasant; the mornings cool and hazy, with heavy dew; days generally clouded and cool, with some heavy falls of rain on the 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 21st, 22nd, and 23rd, with heavy showers on the 27th and 30th, making a total fall of 7°.83 inches. The evenings pleasant and nights cold. Wind moderate, and generally south-westerly, till about the 13th, when it became easterly for a few days, then westerly for two or three days, and after the 18th, settled into easterly breezes, and fine clear weather.

Regiment healthy. Venereal disease still prevalent, with 14 cases of dysentery.

Deaths, one from gastritis, terminating in anasarca, with symptoms of Beri Beri.

Thermometer in the house.

Extreme range during the month, from 71 to 80 degrees.
Ditto ditto the 24 hours, 7 do.
Least ditto the 24 ditto, 2 do.
Average ditto the 24 ditto, $4\frac{1}{4}$ do.

Thermometer outside the house.

Highest when exposed to the sun, 107 degrees.
Lowest when exposed to the weather, 70 do.
Extreme variation when exposed outside, 37 do.
Barometer, from 26°74 to 26°92.

NOVEMBER.—Very delightful weather: the mornings cold and hazy, with heavy dew; the days pleasant, and the air bracing and refreshing. The sun hot when exposed to its influence; some partial showers, but not much rain, only about eight tenths of an inch indicated by the rain-gauge. Wind moderate, and easterly at times, varying to the north or east, south-east and north-east. Nights cold.

Sick list moderate, but venereal cases still numerous. Deaths none.

Thermometer in the house.

Extreme range during the month, from 69 to 77 degrees.
Ditto ditto the 24 hours, 6 ditto.
Least ditto the 24 ditto, 2 do.
Average ditto the 24 ditto, 4 do.

Thermometer outside the house.

Highest when exposed to the sun, 107 degrees.
Lowest when exposed to the weather, 68 do.
Extreme variation when exposed outside, 39 do.
Barometer, from 26°85 to 26°97.

DECEMBER.—Weather extremely pleasant: the air cool, elastic, and invigorating, hot in the sun; but otherwise delightful

weather. Some foggy mornings, and occasionally heavy dew with extremely cold nights and chilly mornings. Scarcely any rain the whole month, only a tenth of an inch. Wind moderate, and generally easterly, at times east north-east, and occasionally, east south-east.

Sick list low. Regiment healthy, and convalescence rapid. Some increase of hepatitis and fever about Christmas.

Ten men sent to Neilgherries.

Deaths, one from dysentery, and one man drowned.

Thermometer in the house.

Extreme range during the month, from 69 to 78 degrees.
Ditto ditto the 24 hours, 7 do.
Least ditto the 24 hours, 3 do.
Average ditto the 24 hours, $4\frac{2}{3}$ do.

Thermometer outside the house.

Highest when exposed to the sun, 111 degrees.
Lowest when exposed to the weather, 66 do.
Extreme variation when exposed outside, 45 do.
Barometer, from 26°84 to 26°91.

Scale of Thermometer exposed in the open Air, for 1833.

Months.	Lowest. 6 A.M.	Highest. 3 P.M.	Lowest. 8 P.M.	Average 6 A.M.	Average 8 P.M.	Average 8 P.M.	Greatest difference in the 24 hours.
January,	64°	110°	67°	$67\frac{1}{2}$	$101\frac{1}{2}$	$69\frac{1}{8}$°	46°
February,	69	113	70	70	$111\frac{1}{4}$	73	44
March,	70	114	72	$69\frac{3}{4}$	112	73	44
April,	70	114	71	$70\frac{3}{4}$	$107\frac{3}{4}$	$72\frac{1}{4}$	44
May,	68	112	70	$69\frac{1}{2}$	100	$71\frac{1}{8}$	44
June,	68	104	70	69	$94\frac{1}{2}$	$70\frac{5}{8}$	36
July,	68	95	69	$68\frac{3}{4}$	$85\frac{1}{8}$	$69\frac{3}{4}$	27
August,	67	101	69	68	90	70	34
September,	68	104	69	73	$93\frac{1}{4}$	73	36
October,	70	107	71	$73\frac{1}{8}$	$97\frac{3}{4}$	$71\frac{3}{4}$	37
November,	68	107	70	$69\frac{3}{4}$	$99\frac{1}{8}$	$71\frac{1}{8}$	39
December,	66	111	70	$68\frac{3}{4}$	$103\frac{1}{2}$	$70\frac{1}{2}$	45
Annual Average,	68	$107\frac{2}{3}$	$71\frac{1}{2}$	$70\frac{5}{8}$	$100\frac{1}{4}$	$71\frac{3}{4}$	$39\frac{2}{3}$

Scale of Thermometer in the House, for 1833.

Months.	Lowest.	Highest.	Greatest variation in the 24 hrs.	Lowest variation in the 24 hrs.	Average variation in the 24 hrs.
January,	67°	80°	11°	4°	$8\frac{1}{3}$
February,	69	86	13	6	$9\frac{1}{2}$
March,	74	90	14	10	$11\frac{1}{4}$
April,	76	91	13	6	10
May,	74	91	12	5	9
June,	70	88	13	5	9
July,	70	86	13	5	9
August,	70	83	10	3	9
September,	70	82	8	3	5
October,	71	80	7	2	$4\frac{1}{4}$
November,	69	77	6	2	4
December,	69	78	7	3	$4\frac{2}{3}$
Average for the Year,	$73\frac{3}{4}$	$84\frac{1}{3}$	$10\frac{1}{2}$	$4\frac{1}{2}$	$7\frac{3}{4}$

GENERAL OBSERVATIONS.

The long-continued absence of rain, as noted in the last year's meteorological observations, continued, in a great measure, till about the middle of August. At that time, the men's health did not appear to have been affected, and such an anomaly had been noticed, as contrary to the usual results of experience, as to the effects of such deviation from the established seasons, upon the human frame. It was then remarked, " Yet strange to say, this great deviation from the generally prevailing seasons, has not been accompanied by its usual concomitant, an increase of sickness. In every part of the world great deviations from the established or expected weather is injurious, and no where more so than in India; since not only the climate but the cultivation almost entirely depends on the periodical falls of rain, and the consequent want or famine, and its attendant dis-

eases." Had these observations been made a few days later, they would have been changed, or greatly modified. Since towards the end of December, a severe catarrhal fever, or influenza, as it was designated, appeared in the Native corps at this station, and first in the 35th Native Infantry, which in January, 1833, affected very extensively the men, women, children, and followers of the 13th Dragoons; as also H. M. 62nd Regiment, as well as most of the European residents, their families and domestics in the cantonment. It remitted or entirely ceased in February, when cholera prevailed in the bazars amongst the Natives, and broke out in march amongst the Europeans of the 13th Dragoons, and His Majesty's 39th Regiment, which had arrived in February, and replaced the 62nd Foot; so that the observations made in last year's Report, were premature, and the unusual, continued, and protracted drought had at length been attended by an extraordinary degree of sickness for Bangalore. Therefore, that which had been considered a deviation from the ordinary results of such altered seasons, has nevertheless turned out another instance of the strong influence which the physical circumstances, with which we are surrounded, modifies the phenomena of animal existence, and predisposes to those epidemical visitations, so destructive to health and life.

The cholera which appeared in March, continued during April and May, with a few cases in

June, and was succeeded by dysentery. In August, there was a great accession of gonorrhœal cases; and syphilis, in all its forms, except secondary, became prevalent in September, and continued to the close of the year.

The almost entire absence of rain, the high temperature, the dry boisterous weather, were remarked till near the middle of August, and which are unusual at this station during the south-west monsoon. This could not fail to modify the endemic diseases of the country; and the acute cases in many instances were obstinate, with a tendency to become chronic and tedious; which is most unusual at Bangalore. It was, however, in a great measure confined to the feeble or delicate, and especially the old soldiers. In fact the old men have suffered greatly; and the deaths have been proportionably great amongst them, attributable, we should think, to the late trying seasons. The past two years have been very hot, and until August and September, little rain fell; so that the heat of the day rendered the chills of the nights, which were often downright cold to the sensations, more trying to the constitution. The old men, who had been long in the country, and many addicted to intemperate habits, have been, as might be anticipated, great sufferers. Acute attacks of disease, however, are in general easily subdued at this station. But where the system has been more or less impaired, and disease perhaps gradual, or more insidious, except in the

young and plethoric, the cases not so violent, or urgent; and therefore, does not come under treatment, at its earliest invasion: and then local derangements, or other ailments, are apt to supervene, or be added to the original malady. A stout young habit immediately becomes excited, and the powers of resistance prostrated, though in general it is almost as speedily subdued; but in the old resident, disease is resisted. It often forms more slowly, and by its mildness, has probably laid hold of the system, ere it forces the individual into hospital, and therefore ultimately becomes protracted, tedious, or chronic; so that they have not only suffered much, but also experienced a tardy convalescence, and in many instances a great break up in the constitution. We may therefore be prepared for a great sacrifice of life during the last 12 months or period embraced by this Report.

Indeed no fewer than 30 men have died in regimental hospital. Yet the list dwindles into a very small number, when it is taken into consideration, that there have been more men treated for disease, than any previous year since the arrival of the corps in India. That there were 842 acute cases on the Returns; that of these, 202 have been cases of cholera, 164 of fevers, 155 of dysentery, and 56 of hepatitis, and yet only seven deaths by the three last affections, which, excepting in 1831, makes the smallest mortality from those diseases, (which may be considered as the ever-

recurring fatal endemics of India ;) and only 15 lost out of so many treated of the first-noted destructive and fatal malady. The same would hold of the other fatal cases, were they similarly analysed and explained. Though the bare statement, that one was from Beri Beri, or Gastritis, as it is returned; one from Phthisis; three from Apoplexy; two from Anasarca, and one from Delirium Tremens, would be confirmative of the circumstance.

PREVAILING DISEASES.

There have been Epidemic Cholera. Epidemic Catarrhal Fever, and the Endemic Fevers and Dysentery of the country, and Hepatic disease, Rheumatism, Diarrhœa, Bronchitis, and Pneumonia, with a few cases of Apoplexy and Anasarca.

The surgical diseases have principally been venereal affections, contusions, wounds, ulcers, boils, with four cases of fracture and one concussion of the brain. A few only of the foregoing affections can be noted.

PARTICULAR AFFECTIONS.

Epidemic Catarrhal Influenza.—This disease appeared towards the end of December, amongst the followers of the 13th Dragoons, with one case only amongst the men of the regiment. Early in January it became prevalent amongst the men, women, and children, as will be illustrated by the following table :

Table of Cases of Influenza, as daily reported in the 13th Dragoons.

Date.	Men.	Women.	Children.	Followers.
December 27,	0	0	0	2
Ditto 28,	0	0	0	5
Ditto 29,	1	0	0	3
Ditto 30,	0	0	0	7
Ditto 31,	0	0	0	7
January 1,	0	1	2	5
Ditto 2,	7	2	4	7
Ditto 3,	4	0	2	4
Ditto 4,	12	2	4	7
Ditto 5,	15	1	6	2
Ditto 6,	5	1	5	1
Ditto 7,	12	2	14	2
Ditto 8,	4	2	21	5
Ditto 9,	7	0	6	4
Ditto 10,	8	2	16	5
Ditto 11,	8	0	7	2
Ditto 12,	3	3	1	1
Ditto 13,	3	1	0	3
Ditto 14,	6	0	5	3
Ditto 15,	7	0	4	1
Ditto 16,	4	0	1	2
Ditto 17,	1	0	0	2
Ditto 18,	2	0	1	5
Ditto 19,	3	0	3	5
Ditto 20,	1	0	0	3
Ditto 21,	0	0	3	0
Ditto 22,	1	0	0	0
Ditto 23,	1	0	0	0
Ditto 24,	0	0	0	1
Ditto 25,	0	0	0	0
Ditto 26,	0	0	0	0
Ditto 27,	1	0	0	1
Ditto 28,	0	0	0	0
Ditto 29,	1	0	0	0
Ditto 30,	1	0	0	0
Ditto 31,	1	0	0	0
February 1,	1	0	0	0
Total,	120	17	109	95

The following table will shew the aggregate numbers treated, and the result:

Return of Admissions, Discharges, and Deaths, with the Epidemic Catarrhal Fever, in H. M. 13th Dragoons, from 27th December, 1832, *to* 19*th February*, 1833.

	Total admitted or Treated.	Cured.	Died.	Remarks.
Men of the Regiment,	120	120	0	
Women Ditto,	17	17	0	Died on the 3rd day of admission, with an oppression of the chest.
Children Ditto,	109	108	1	
Followers Ditto,	95	95	0	
Total,	341	340	1	

There is no object more interesting to the medical inquirer than the History of Epidemic Diseases. Since the days of Sydenham, much has been written, yet how little added to his observations. He notes the perfectly dissimilar appearance of epidemic disease, which depend as much upon the various seasons of the same year, as upon the different constitutions of different years, and adds, " Though I have carefully observed the different constitutions of different years, as to the manifest qualities of the air, that I might from thence discover the causes of the so great dissimilitude of epidemic diseases, yet, I must own, I have hitherto made no progress, having found that years, perfectly agreeing as to the manifest temperature of the air, have nevertheless produced very different tribes of diseases, and vice versâ." Neither have the more recent observations of modern philosophers with the Thermometer, Barometer, Otherioscope, Photometer, Electri-

scope, Hygrometer, Omteometer or Rain-guage, and the Atmometer or Evaporometer, done much to elucidate this subject. How deeply is this to be regretted, since at this particular period, the inquiry becomes more than interesting from two epidemic visitations of disease following so close the one upon the other, and yet, so varied in their phenomena and results, each alike excluding or modifying the prevailing endemics of the country, and each guided by laws peculiar to itself. However, the further we pursue the investigation, the more lost do we become in the mazes and intricacies of the subject. The various phenomena attendant on the former disease were curious and interesting; but to draw conclusions, or to generalize extensively on those circumstances, would lead to a labyrinth at best of ingenious conjecture, and may be palpable contradictions. That its source was general and extensive, would appear by its attacking all classes, sparing neither age, sex, nor constitution, and extending from the extreme of the Horse Artillery, to the fort at Bangalore; yet even here it had its anomalies, by affecting the Native Horse Artillery, and entirely exempting the European Foot Artillery, about one hundred persons. It appeared in the 35th Native Infantry, and then in the other Native corps, with H. M. 13th Dragoons, and H. M. 62nd Foot, and their families and Native followers, with several of the officers resident in the cantonment, as well as their families, and most of their servants, or followers. The weather about this period was very

trying to the frame; the sun extremely hot and powerful; the air cool, and even chilly; the nights particularly raw and cold, and the mornings foggy, with very strong north-easterly winds. As the weather changed, the disease gradually disappeared. Here however we come to no satisfactory conclusion, as in every climate, and in all states of the atmosphere, we see epidemic disease; and here the influence, though general and extensive, was local: for the malady was confined to certain corps. Many curious facts lead to a supposition, that it was infectious:—but again, the facts were so numerous to over-rule such a conclusion, that we incline to the epidemic origin of the disease from atmospheric influence, as the most satisfactory, or least contradictory, explanation. In whatever way propagated, however induced, whence arising, or how contracted, it was a curious fact, that almost all our men imputed its invasion to cold, generally caught whilst asleep at night.

Thus of 120 *men attacked—*

44 impute it to cold caught by sleeping exposed to a current of air on Line-guard.

14 impute it to cold caught by sleeping exposed to a current of air when on Barrack-guard.

12 impute it to cold caught by sleeping in the open air when on Picquet duty.

17 impute it to cold caught by sleeping opposite doors or windows of the barracks, that were kept open.

2 impute it to exposure to the weather.

2 impute it to exposure to a current of air when in a state of copious perspiration.
29 can assign no cause for the disease.

120 Total.

So that we may fairly conclude, cold to have been the most general immediate exciting cause.

The attack itself, for the most part, was sudden. The patient was awoke by a feeling of cold, succeeded by rigors, followed by flushes of heat, giddiness, or violent head-ach; distressing muscular pains, or aches all over the person; pains across the loins; prostration of strength, with rawness, soreness, or pain in the chest; uneasiness or pain in the throat; hard dry cough, with heavy watery red suffused eyes, and often pain at the epigastrium, with nausea and vomiting of bilious fluid. In fact, a severe catarrh with high fever, bronchial or pulmonic disease, and inflamed tonsils.

There was generally great susceptibility to cold, and the bronchitic affection, in every case, had more or less redness, and at times swelling of the tonsils. Individual cases varied considerably; so much so, indeed, that several of the attacks were put down as Catarrhus acutus, Cynanche tonsillaris, Bronchitis or Pneumonia, as

the local affection predominated or stamped a marked nosological character upon the disease; though the fever, the catarrhal affection, the state of the fauces, and chest, and its progress and cure, shewed it to be the prevailing epidemic.

Much variety was also observed in the accession of the disease: some had catarrhal symptoms, generally slight, for some days before the fever and local affections made their appearance. Others again had weakness or faintness, giddiness, loss of appetite, head-ach, rigors, flushes of heat, universal soreness or muscular pains, previous to the appearance of sore throat, or pectoral disease, that is, in these cases the febrile symptoms appeared first. In some cases, again, a slight sore throat preceded the catarrhal and pulmonic disease, and the fever was the last in the train of morbid phenomena. So that in some the fever almost seemed to be symptomatic of the local disease; in others again, these were pretty numerous, they all appeared to arise simultaneously together, and it was difficult to say which was the first, the local or the constitutional disease.

However, the pathognomonic symptoms, and which were common to nearly every case, admitted into hospital, were cough, pain in the chest, redness or swelling of the tonsils, and febrile exacerbations, more or less severe, with prostration of strength.

The violence and severity of the disease, in many instances, will be best judged, by taking a glance at some of the principal functions, or most urgent symptoms.

There was, in almost every case, great debility or prostration of strength, or as the patients expressed it, they felt extremely weak and faint; the head was light and giddy, and in the progress of the disease, very harassing head-ach; some referred it to the distress, arising from the incessant coughing. In no case was delirium observed. The eyes were heavy, dull, watery or suffused, and in some intolerance of light, and in two cases the conjunctival redness terminated in an attack of Ophthalmia. There was often much sneezing, and a running from the nose, indicating the implication of that organ. In every case the throat and fauces were more or less affected, and many had hoarseness; some had great swelling of the uvula and tonsils, and pain and difficulty of swallowing; others again, did not even suspect the throat to be affected when it was red and swollen, and even to all appearance most highly inflamed, and of a deep red colour, approaching to crimson or purple. The soreness in some cases seemed to extend down the fauces and gullet, to the stomach; in others down the trachæa to the bronchi. The ear at times was pained, and one man, a serjeant, was nearly deaf, for some considerable time, probably from the eustachian tube being affected. To the patient

no symptom was more distressing than the cough; at first it was dry and hard, often almost incessant, destroying rest and sleep, and aggravating every symptom: as expectoration came on, it became relieved, but it was often the first symptom observed, during the progress of the malady, the most distressing and constant, and often continued after every other affection had ceased, and in three or four cases, lasted for several weeks. The affection of the chest often excited much distress, and to the medical attendant, most anxiety. In general there was considerable pain across the chest, with sometimes a sense of constriction or suffocation. In others, a rawness or soreness extending exactly along the course of the sternum. In most of the cases, the bronchitic disease seemed violent and urgent, with Pleuritis or Pneumonia; in others the pain often extended to the sides, the margins of the false ribs, between the scapula and to the shoulders. In some it was in the right shoulder, in others in the right side or hypochondrium; indicating probably some degree of hepatic disease, though during this epidemic the endemic diseases of the country appear entirely to have ceased, or been excluded or superceded.

We have already stated the fever to be pathognomonic of this Influenza; it was apparently idiopathic. There was no case without some degree of heat or excitement, and in general violent and often very sudden. Yet the fever was little dependent upon the catarrhal affection, some-

times remaining when the inflammatory symptoms had subsided, and going off when the local affection was increasing; often violent when there was little bronchitic irritation, and frequently light, when the tonsils or chest were most affected, and shewed, that though it was generally attendant on the local disease, yet, that it was not symptomatic. It was generally irregular in its accessions and remittent, often coming on at night and going away in the morning. It seldom lasted beyond three days, and then was probably kept up by the local affection. In the 35th Native Infantry, it was said to be intermittent*, and to assume a quotidian type. In the European it was most irregular in its invasions and attacks, often rigors, three, four, or five times in the twenty-four hours, succeeded each time by flushes of heat or strong excitement, and in many cases with more or less of the sweating stage, which in some cases, appeared to carry away the disease, or induce convalescence. The greater proportion of sick became relieved on the third or fourth day, which would tend to shew the strong dependence the local disease had on the constitutional affection. The rigors, though frequent, seldom lasted long. The hot stage or state of fever or excitement often continued for several hours, the skin mostly dry and frequently hot, quick respi-

* I am indebted for this information to Mr. Darward, a very intelligent Medical Officer, who was attached to the 35th N. I. while the sickness or epidemic prevailed in that corps, but who was doing duty with the 13th Dragoons.

ration and flushed face. The pulse was generally quick, often hard; yet in several cases, and severe ones too, the pulse was little affected, or did not rise above 80 or 90. The bowels were generally natural at first, though in several cases, there was pain in the belly, griping, soreness over the abdomen, and more or less diarrhœa. As the disease remitted, there were copious bilious, green, dark or black evacuations. Many cases were ushered in with nausea, sickness, and even bilious vomiting, and cramps in the legs were noticed in one case. The tongue was generally white and loaded, and occasionally red and excited. One individual, as we have noticed, a serjeant, had cramps in his legs, but unallied with cholera; several cases had an eruption exactly similar to Urticaria. It appeared connected with the epidemic, and with the pectoral symptoms left the patient: it was also observed in two children of officers in the cantonment.

When early and actively treated, the disease usually lasted from three to four days, after which period, slight cough, some expectoration and debility only remained.

Thus of 97 men attacked,
14 were ill two days.
23 ditto three days.
31 ditto four days.
16 ditto five days.
9 ditto six days.
4 ditto seven days.

It is true, some few men were ill, ten, twelve, fourteen, and one person twenty-eight, days; yet this was from the disease having been neglected, or in some instances, arising from relapses. The fever usually lasted three days, and this was generally the case when it even preceded the catarrhal and pulmonic affections, or appeared simultaneously with them, or subsequent to their appearance. The mildest and slightest cases at first were usually the most protracted, probably from the treatment being less active in such cases.

The terminations of this disease may be said to have been favourable, since one child dying out of 341 cases of all classes treated in hospital can scarcely form an exception. It was besides both weakly and delicate. Often there was a complete remission or resolution, sometimes again perfect convalescence after a copious perspiration, though when the disease became protracted, it was generally relieved by expectoration. At first the sputum was scanty, then glary, thin, or frothy, and at length, thick and copious, and very similar to purulent matter, and even sinking in water; some cases appeared relieved by a copious secretion from the Schneiderian membrane. None are noted as having been relieved by a secretion from the kidneys.

The treatment may be styled most active, since those cases which from their mildness were

not vigorously treated at first; subsequently, in many individuals, proved the most protracted, and the convalescence the most lingering. The same may be said of the cases which were neglected in the commencement.

Venæ Sectio was generally and largely used, and even repeated. Of 120 men admitted, 103 were bled, and 49 had leeches applied, either to the head, to the throat, or to the chest. After the bleeding, either an emetic of Ipecacuanha, or a scruple of Calomel, with one grain of Tartar Emetic, was exhibited, and this followed up by saline purgatives with Tartar Emetic, which in general both vomited and purged, and determined to the surface. Repeated emetics were given when the Cynanche was severe, and they gave most relief. The expectoration was promoted by the inhalation of the vapour of hot-water, as also the squills, digitalis, and the gum ammoniac in the cough mixtures, with diluents, &c. Some took the antimonial or Dover's powder, to determine to the surface, and several the warm bath. Where the pulmonic affection was severe, small doses of Calomel and Tartar Emetic did good, as also the Pulv. Ipecacuanhæ, in ten grain doses, frequently repeated. Fomentations to the chest, and Volatile Liniment applied, did good; but blisters, except to the throat, seemed to irritate too much, excite constitutional fever, and protract the patient's recovery and stay in hospital. In some of the pulmonic cases which seemed peculiarly obsti-

nate, probably from being of a rheumatic nature, relief was afforded by small doses of Calomel and Antimony persevered in till the mouth became affected. Strong gargles, sometimes with Capsicum, were used for the Cynanche cases.

The women, children, and followers were treated with Emetics, Calomel, and saline purgatives; leeches, warm plasters to the chest, and even blisters; warm baths, Ipecacuanha, saline mixture with the tartarized Antimony, and gargles for the sore throat.

The foregoing treatment was eminently successful, if we may judge by the results. In the bazars amongst the native population, the disease is said to have proved destructive to many—the old, the weakly, and the infirm—by the debility and fever which followed. With us one child only died. None of the women, children, and followers seemed to suffer, and in three men only did it ever appear to be injurious in its consequences. One, an old soldier, who last year had a chronic catarrh for several months, ultimately died of Phthisis Pulmonalis. Another, who died from Cholera, had his lungs diseased, and tubercles had formed, but without suppuration. He was always delicate and sickly-looking, and drunk very hard. The third individual, who also died from Cholera, when convalescent of the Influenza, had the pulmonary artery and bronchial tubes extensive-

ly ossified; but this might have had no connection with the Epidemic.

CHOLERA.

No fewer than 202 men of the 13th Dragoons have been admitted with Cholera during the last 12 months. The total of all classes treated, as well as the progress of the disease, will be shown by the following table:

Return of Men, Women, Children, and Native Followers, treated for Cholera, in the Hospital of H. M. 13th Dragoons, from 1st January to 31st December, 1833.

Months.	Men.			Women			Children.			Followers.		
	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.	Admitted.	Discharged.	Died.
January,	0	1	0	0	0	0	0	0	0	0	0	0
February,	5	3	0	2	1	1	0	0	0	0	0	0
March,	53	26	4	2	0	0	8	3	2	0	0	0
April,	85	88	8	9	10	1	15	15	2	6	6	0
May,	43	49	2	8	6	2	9	8	2	2	2	1
June,	7	10	0	1	1	0	1	1	0	0	0	0
July,	1	3	0	0	0	0	0	0	0	0	0	0
August,	3	2	1	0	0	0	0	0	0	0	0	0
September,	0	1	0	0	0	0	0	0	0	0	0	0
October,	1	1	0	0	0	0	0	0	0	1	1	0
November,	1	1	0	0	0	0	0	0	0	0	0	0
December,	3	2	0	0	0	0	0	0	0	0	0	0
Total,	202	187	15	22	18	4	33	27	6	9	8	1

The disease consequently appeared in February, the first case on the 15th of that month; but it was not prevalent till March, though it continued all April and May, with a few cases in June,

when it lost its epidemic characters; and the subsequent seizures might be considered sporadic, such as we see at all seasons, and in every situation in India.

Whilst the Cholera prevailed, it was noted, that all acute endemic affections seemed either to have been arrested, or much influenced in their mode of accession, and in a most extraordinary manner as to frequency. Thus in March we had very few cases of the prevailing diseases of the country, though in April, whilst it was most prevalent, scarcely any thing, but fevers; and in May, as the epidemic was declining, principally dysenteries; and in June, when it had almost entirely disappeared, very few of fever, and a most marked increase of Dysentery, with a return of Hepatitis, which latter seemed to have merely left us, during the ravages of the Cholera. In confirmation of the foregoing, it may be added, that in March, we had 53 cases of Cholera, 10 of Fever, 7 of Dysentery, and 3 of Hepatitis. In April, 85 cases of Cholera, 36 of Fever, four of Dysentery, and one of Hepatitis. Again in May, there were 43 of Cholera, 18 of Fever, 24 of Dysentery, and 3 of Hepatitis; whereas in June, of Cholera, only 7 cases; of Fevers but 11, though the dysenteries had increased to 35, and Hepatitis, 7 cases. This surely could not have been accidental!—Did we venture to offer an explanation, we should suggest, that in March, Cholera pre-

vailed, to the exclusion of the endemics of the country. That in May, from the precautions taken to detect the disease or the alarm whch prevailed, the men reported themselves earlier, and the disease was generally arrested at its onset; and the re-action was not only powerful, but gave rise to a disease of excitement, and as such noted and entered in the Returns. In many of the cases the earlier symptoms were so slight, and the re-action so apparent, that the primary diseased movements were scarcely attended to, and the disease entered or marked by the excitement under the head of fever. This bears strong confirmation, from the circumstance, that it was really difficult, in many instances, to say what disease, the malady was to be designated; and the like circumstance has been noted in Europe, where it has been questioned by some, whether or not it was altogether a febrile affection. Here it was very common for persons to present themselves with many, if not most, of the precursory symptoms of Cholera, as faintness, nausea, griping or colicky pains in the belly, anxious, distressed, pale countenance, thirst, heat at præcordia, feeble pulse, heavy suffused or peculiar eye, who have merely had a scruple of Calomel, with two grains of Opium, covered warmly in bed, when they have fallen asleep, and awoke quite well; got a dose of Castor Oil, and have gone to their duties, without having been admitted on the Hospital books, or enumerated amongst the sick. Such a train of phenome-

na, with the like results, could be the precursor of no other disease than Cholera, since they were the symptoms, which usually ushered in that malady, and are indeed rare in the diseases of the country, and prevailed only, whilst Cholera itself was prevalent; and therefore, it is to be presumed, characteristic of the epidemic, which we are recording. Some of these cases, however, in passing away, brought on, as already noted, re-action and fever; without the vomiting, purging, sinking, cramps, &c. when it was designated Fever. Later again, that is in May, the disposition of Fever was less marked, and the dysenteric symptoms were the most frequent, as its sequæla, and ultimately became the prevalent affection. Some rain fell in May, not much it is true, yet sufficient to make the nights sensibly colder, without affecting the heat in the day; and in June, when the Cholera left us, still more fell, and which rendered the cold at night more trying to the system. This may in some degree account for Fever at one period, and Dysentery at another, being the more frequent attendants on Cholera.

The Report which we had intended to have drawn up, would be much too extended for this place. We shall therefore merely give a hasty sketch of the disease, marking merely such peculiarities or anomalies as appeared either characteristic or interesting.

This has been the first epidemic appearance of the disease amongst the European troops at this station. In former years, a few cases did occur occasionally, but they were neither general nor very violent. Why it should the last year have been so prevalent, so general, and so fatal, it is vain to attempt a solution. True, it was a dry, hot, disagreeable, and unhealthy year, little or no rain having fallen, but this is merely giving the fact; since Cholera has now traversed the greater portion of the globe, and seems to have raged in wet as well as dry weather, under the "copper sky" and fiery hot winds of India, as the freezing snows of Russia; so that it is useless to draw any conclusion from the late unusual weather.

The disease itself varied according to the stage of its advancement, the severity of the attack, and the period of its occurrence, modified no doubt by the habit of the patients, &c. In the earliest and simplest form, in many persons, it seemed to be surmounted or thrown off by the almost unaided powers of the system, or if assisted by art, it required only the slightest aid, such as warmth, an opiate or a mild stimulant. More advanced again, or where it became developed or confirmed in its earlier stages, it was generally subdued, unless it ran into a state of collapse, when every variety of treatment seemed, in many cases, either useless, or to hasten the final

fatal termination. This would, indeed, almost lead one to doubt the correctness of the symptoms, usually designated pathognomonic of this disease ; and if we have not frequently considered the struggles of death, as the symptoms characteristic of the disease itself, so much so that a French philosopher* of great acuteness and high celebrity, who had been sent by his country to study its phenomena, on his return, said, " Cholera begins where other diseases end." We may therefore be permitted to consider the grounds of such belief, and the cause of such opinions. This affection has frequently been compared to the effects of a deadly poison, the bite of a venomous snake, or even destruction by lightning, which in some measure is true, as cases have been seen where life became extinct almost at once. In others again the symptoms follow each other so rapidly, that it is impossible to classify or even to separate them ; or indeed to say, which was the order of their occurrence : so that it is only where the malady is very moderate, or advances more slowly, that we can hope to analyse its phenomena, or expect to arrive at a rational conclusion, as to its treatment. Hence how important it must be to separate the symptoms of the disease, from the struggles of dissolution.

The worst cases are those which are characterised by sinking; hence in the most fatal attacks and destructive invasions, there is often

* Majendie.

little or no vomiting or purging, or scarcely any spasms ;—in fact, where nature makes not the least effort to relieve herself. Again, where this affection is not so formidable, we have more disturbance in the system, or what may be styled more resistance to the disease, as evinced by the violence of the vomiting, the purging, the pain, the cramps, &c., so that it has appeared to us, that in some cases, the force of the disease has at once annihilated all the powers of life, and death has been the almost immediate result. In others again, where it has not been so violent, the efforts of nature have made an exertion to get rid of the malady, and the consequence has been the disturbance which we have so often witnessed ; sometimes in such cases, though the struggle be protracted, yet the injury, whatever it is, is such as to kill, and no effect of art or nature, can or does, avert the patient's doom. Lastly, some attacks are so slight, or the frame so indisposed to its invasion, or where the disease has not had time to destroy the balance, on which life depends, the individual resists its force, or at once rallies, or shakes it off perhaps with little or no medical aid, or by the most contrary and contradictory practice.

If our ideas therefore be correct, we may be prepared for often confounding the struggles of death, with several of the phenomena characteristic of the progressive state of the disease itself, since some of them, indeed, are apparently com-

mon to both. Thus, in one case, they may be the efforts of the vital powers, to get rid of the cause which so deranges the animal machine, in its movements; in the other, the last sinking or expiring effects which are observable at the close of many fatal diseases. But in Cholera, from the intensity of the malady, and the rapidity of its progress, they appear to run into one another, and hence, perhaps, much of the obscurity, ambiguity, and uncertainty, which rests on its treatment, and the discrepancies so distressing in its therapeutics.

However humiliating such contemplations may be, or the apparently insurmountable difficulties thrown, as it were, over the subject, yet it is pleasing, and consoling, to note, that in its earliest stages, or in the more mild epidemic visitations, it is not so fatal a disease as we have been led to apprehend. The detail of its symptoms we shall pass over; and, at once endeavour to illustrate our view, by a description of the disease, as it has been presented to our notice—since the former are but two well known, to all who have seen Cholera, and which are both correctly and faithfully detailed, in the innumerable works now published on the subject. The latter, however, as it may tend to point out its anomalies or peculiarities, are important, since it is only by a correct record of facts, that we can ever hope to elucidate its history, or unravel the mystery which has so long perplexed professional ingenuity.

It has already been observed, that this has been the first epidemic visitation of Cholera, attacking the European troops at Bangalore. Amongst the Natives in the bazar, it has been frequently prevalent, but probably never to the extent witnessed this year. In epidemic visitations, this disease seldom lasts beyond a few weeks, whereas we had 53 cases in March, 85 in April, 43 in May, and seven in June, exclusive of many cases not enumerated, from the attack being so mild, as to go away in a few hours, and not to require treatment in hospital; or in others again, running into Fever or Dysentery, and which have consequently been entered on the Returns under the heads of those diseases. In fact, it was found, that when the men reported themselves at the very commencement, the disease was so frequently checked, or easily cured, that the most urgent appeals were made to the soldiers themselves, on the subject, as well as having them watched; and all who were seen to vomit, or resort frequently to the privy, were sent into hospital. Indeed, so conscious were the soldiers themselves of its benefit, that in most cases they applied for aid as soon as they became indisposed. Thus, many have presented themselves, stating, that they felt faint, had nausea, or uneasiness at the stomach, much thirst, pain at the epigastrium, cholicky or griping feel in the bowels; sometimes pain in the legs, or stiffness in the muscles, with slow, feeble, or oppressed pulse, anxious distressed countenance, heavy, sunk, or suffused eye, tremu-

lous pale tongue, and much distress of manner; and the skin preternaturally cool, sometimes cold, and even damp. In this state, a large opiate, combined with calomel, generally gave relief; some fell asleep, and awoke quite well, when a dose of castor oil completed the cure. In fact, they were sent away, and no note was taken of their cases. Others again had either re-action ending in Fever or Dysentery, or the Cholera symptoms were less or more developed, though, in general, in a mild form. This must be evident—of 202 cases, only about 33 being noted as violent cases, and put under the head of Cholera Indiana. We may here observe, this is an arbitrary or fanciful division, which we have never been able to comprehend, and have therefore confined it to cases of extreme danger; for when the line is to be drawn between them, we are at a loss to say: since the cases usually began alike, and as it has been shewn, if early checked, has been a mild tractable affection. Whereas, in unfortunate habits, predisposed to its attacks, or what was more common, neglecting it, at the onset, it has ended in collapse, spasms, and death.

In many cases, there is a strange infatuation—a reluctance to believe that the disease was Cholera; and hence the poor victim gets beyond the reach of art, or the efforts of nature, ere he entered the hospital. The following table will shew the importance of early treatment.

Return shewing the Periods the Men were ill, previous to their Admission into Hospital.

Number.	Period ill.	Remarks.
61	Within 1 hour.	1 Died.
33	2	
30	3	1 Died.
27	4	
20	5	3 Died.
9	6	2 Ditto.
3	7	2 Ditto.
9	8	2 Ditto.
1	10	
2	12	1 Died.
2	14	2 Ditto.
3	15	
1	22	
1	29	1 Died.
Total, 202		15 Died.

Therefore of 151 who came into hospital within four hours of the invasion of the disease, only two died, whereas it proved fatal in a large proportion of those who had been ill 5, 6, or 7 hours, since there were seven deaths in thirty-two seizures, and particularly two who had been ill 12 hours, and two who had been attacked 14 hours, since one only recovered. So that making due allowance for the severity of the attacks or the predisposition to the disease, or the habit, &c. of the patient, we may safely conclude that, the violence of the seizures, depends in a great measure on the period the patient is admitted into hospital, or comes under medical treatment. Here again we see the great importance of accurately defining the symptoms which usually usher in this disease. These unfortunately are insidious, often the results of intem-

perance, or the precursors to Diarrhœa or Dysentery, so that it is only when the malady breaks out epidemically, that we can be on the watch, and fully on our guard.

It did not appear that any age or habit was more subject to its attacks than another. Thus there were more seizures from 25 to 30 years, than at other periods, which corresponds to our having more men of that age, than any other in the Regt. The mortality was confined to no period.

Ages of Men Attacked and Died.

Number.	Ages.	Of whom died.	Remarks.
1	16		
1	17		
2	20		
4	21		
6	22	1 died.	
13	23	2 ditto.	
11	24		
13	25	3 died.	
17	26		
17	27	2 died.	
12	28		
11	29		
10	30	1 died.	
6	31		
5	32		
4	33	1 died.	
4	34		
5	35		
8	36	2 died.	
9	37	1 ditto.	
3	38		
7	39		
10	40		
7	41		
4	42		
4	43		
3	44		
2	45	1 died.	
3	46	1 ditto.	
Total, 202		15 died.	

Unless in possession of a table shewing the service of the whole Regiment in the country, it would be difficult to show how far the attack was influenced by residence in the country.

The following return however will indicate the period of the services of the men in India who had the malady.

Number.	Service in India. Years.	Of whom died.	Remarks.
1	30		
2	23	1 died.	
1	22		
9	21		
6	20	1 died.	
11	19		
4	18	1 died.	
2	16		
7	15		
24	14	4 died.	
6	13		
3	12		
7	11		
4	10		
5	9		
7	8		
7	7		
12	6		
20	5	1 died.	
31	4	1 ditto.	
12	3	2 ditto.	
10	2	2 ditto.	
11	1	2 ditto.	
Total, 202		15 died.	

We come now to a much more important enquiry, which is to see how far the disease was influenced by locality, as this has been known at times to have a perceptible effect on the numbers attacked. Here it appears to have had little influence.

Seizures by Troops.

Troops.	Number attacked.	Number Married.	Total Died.	Married Men died.	Remarks.
A	25	6	2	1	
B	25	2	2	0	
C	26	2	1	0	
D	24	4	2	0	
E	13	4	2	2	
F	35	5	2	1	
G	24	5	1	1	
H	30	6	3	2	
Total,	202	34	15	7	

The foregoing table, however, is very important: though it shews that locality had little to do with the matter, yet that only about one married man out of six was attacked, in proportion to the seizures, though the latter amounted to a third of the whole regiment. But the mortality again preponderated in a most extraordinary degree against the married men. For out of 34 attacked, seven married men died; whereas, out of 168, not married, there was nearly the same number, which in the former, was as high as 1 to $4\frac{6}{7}$, and in the latter, only 1 to $19\frac{3}{4}$. This has not been confined to the present epidemic, since we have observed it in former visitations of the malady. It was then endeavoured to be explained by the married men living separately, being less under the eye and control of their non-commissioned officers, and therefore not sent into hospital at so early a period; as well as the anxiety and depressing passions, when admitted, as to their fate, in its consequences, to their unprovided or helpless families.

Of the nature of the malady we can scarcely venture a conjecture. We may therefore reiterate, what we long since noted in a former report, "we must come to the conclusion, that our knowledge regarding it, is still in its infancy, and that we have yet much to learn; and that the theories of the schools, or the dogmas of the learned, avail little in elucidating its appearance, or explaining its phenomena."

With regard to the causes of the disease, we have little to say. Few of the men could trace its origin. The following assigned causes are so far interesting, that every thing relating to this affection is important to note.

DISEASES IMPUTED.

166 know no cause.
14 impute their disease to drinking cold water.
1 imputes his disease to eating some fat bacon.
1 ditto ditto ditto some bread and milk.
1 ditto ditto ditto curry and rice.
1 ditto ditto ditto cold mutton.
3 impute their disease to cold, caught by sleeping opposite a door.
2 impute their disease to cold, caught by sleeping opposite a window.
1 imputes his disease to cold, caught by sleeping on the ground of the Guard Room.
1 imputes his disease to cold, caught by getting wet in the rain.
1 imputes his disease to drinking some milk.
2 impute their disease to drinking some hot tea.

3 impute their disease to cold caught by sleeping in the Sick Lines, exposed to a current of air.
1 imputes his disease to cold caught on Line Guard.
3 impute their disease to exposure to the sun.
1 imputes his disease to exposure to the cold air.

202 Total.

Little information is to be got from the foregoing enumeration, as to the immediate exciting causes of Cholera. Neither is much known as to the way the disease is communicated. So far as our experience goes, it is not contagious. Nor has it in a single instance appeared in the most remote degree to be communicated from one person to another. Non-intercourse, with the affected, gives no immunity to the attacks, and the actual and constant repeated, and the most free and unrestricted communication, do not appear to predispose to its invasion. However, where so much uncertainty involves the subject, there also must be ample materials for plausible ingenuity to exercise its talents, since most of the phenomena attendant on Cholera are common to all the known unquestionably recognised contagious diseases; it will therefore be no common sagacity that will solve these difficulties, and set the subject at rest. We know Small-pox, Measles, Scarlatina, &c. only prevail epidemically at certain periods, and at others, only solitary cases appear without spreading. Cholera obeys similar laws in its invasions and prevalence. Here, however,

the parallel in a great measure terminates. The former (when the atmosphere is in a favorable state for their dissemination) every one can bring cases to recollection in which they have appeared to be propagated from person to person. Innumerable are the instances, when from a solitary case inoculated, the Small-pox has spread to numbers from communication. In India, the disease itself, is supposed to be kept up from that source, and hence frequently prevails as an epidemic in the bazars, &c. It was observed in last year's Report of Cholera : " Indeed the occasional occurrence of a solitary case without extending to others, though numbers are assembled together, as also the attendants in hospital, and who have communication, most freely with the diseased individual, is the strongest fact of its non-contagious or non-infective character in India. In this it seems to obey no laws which usually guide diseases which are communicated from one person to another. Its sudden appearance, its sudden disappearance, its selecting its victims out of numbers assembled in the same place, its being confined at times to certain spots, its disappearing on troops changing their encamping ground, its appearing in the hottest as well as the coldest weather, a few showers dispersing it at one time, and its coming on, during the rains, at another, are all anomalies in its history, which the usual laws of epidemic and contagious diseases, with which we are acquainted, do not explain. That it depends on the state of the atmosphere is pro-

bable, though we have no other mode of specifying what that state is, than by its effects. Like the matter of heat, we only know it by its attributes, and that during its prevalence, dyspeptic and other diseases are more common, and the usual endemics, as well as all acute diseases, are liable to be modifyed by it, so as to be characterised with some of its symptoms. This, it is believed, takes place in no contagious disease, with which we are acquainted, though frequently observed by medical authors in the epidemics which they have described." But this perhaps may appear more imposing, than convincing, more affirmative, than conclusive, so it may not be uninteresting to state the grounds of these conclusions.

In a Report made in 1828 of the disease, as it appeared in H. M. 14th Foot, it was noted: " None of the native attendants at the hospital have been attacked; though in the immediate vicinity of the bazars*, several have died daily. Out of 150 individual patients in the hospital, only one had this complaint, together with Mr. Sylvester (the Assist. Apothecary), so that we have no adequate grounds to deem it for a moment contagious."

In the same year, a similar Report was made from H. M. 3rd Buffs, in which it was observed;

* The bazar was close in rear of the hospital, and was the daily resort of the native servants.

"The corps was healthy till the appearance of Cholera: as far as the cantonment was concerned, it seemed in a measure confined to the men, women, and a few of the children of the corps :—thus giving the officers, the native followers, and people in the Regimental bazar, the patients in hospital, and the hospital attendants, about 80 in number, with their families, all living close together, and promiscuously mixed, a comparative immunity from the disease.

"None of the native attendants at the hospital have been attacked; and out of 5 or 600 individual patients, four only have had this complaint."

The foregoing of course merely means, that whilst the Cholera prevailed, that number of patients passed through the hospital, during which period 117 cases of Cholera alone were treated, of whom 27 died.

The following year's Report was equally explicit, in which it was stated :—"Cholera, we consider an epidemic disease, arising from a peculiar constitution of the atmosphere, at the time of its production, and influenced in its attacks, by locality, varieties of constitution, mode of life, and above all, a certain predisposition to the disease.

"The sudden appearance of Cholera last year at Berhampore, and at this station, as well as its appearance this season, with its usual treachery,

on the 18th March, and its subsequent career, tend strongly to corroborate the foregoing opinion :—At different places, it appears simultaneously, or at different times, and out of numbers assembled together, selects its victims, without reference to age or sex, evidently shewing, that some peculiarity of constitution, or mode of life, had influenced its accession, which the doctrines of contagion can never explain. Indeed, the very high atmospherical temperature existing at the periods when it usually prevails, discountenances from analogy, its infectious nature. None of the officers have had it this season."—And yet there were 209 cases, and 31 deaths ! and of whom only six were patients in hospital at the period of seizure.

If we continue the inquiry, we shall find the late epidemic, as it prevailed at Bangalore, fully corroborative of the foregoing statement.

Of three medical officers, ten subordinate medical attendants, and 17 coolies, &c. only one cooly had the disease, and he was attacked at his house in the bazar and died, without our even knowing he had been sick.

Out of the great many patients, who had during so extended a period, been treated in hospital, only five had the disease. Of these two died. But they were sickly men; one having tubercles in his lungs, and the other ossification of the pulmonary arteries.

The former was a most extraordinary case, for though he had sickness at stomach, yet the usual watery fluid thrown off by vomiting and purging, seemed in this instance to exude from the lungs, and into the cavity of the chest, as he was suffocated by a profuse and sudden serous exhalation from the pulmonary tissues. On dissection, the lungs did not collapse, and appeared large and healthy in colour, with about a quart of fluid in each cavity of the thorax. The substance of the lungs rather red in colour, and infiltrated with sputa, similar to saliva, considerable quantities of which oozed on cutting or pressing the lung. Some tubercles but no ulceration, lungs very heavy, some fluid in pericardium.

It was customary, when a man was deemed dangerously ill or required particular care and attendance, to have two of his comrades from the Barracks to attend upon him in hospital, and these were regularly relieved. Thus 18 men who were extremely ill and for whom 57 attendants were procured, and who were completely occupied, either in rubbing them to ease the cramps or giving them their medicines, and in fact performing all the offices and duties of nurses, and even at times, they were seen sleeping alongside their beds, yet only four of these 57 men so employed, were attacked and none died; which makes 1 to 16 attacked, whereas 202 to the whole regiment, makes a proportion of seizures as 1 to $3\frac{1}{5}$. It would thus appear that the 57 who at-

tended upon 18 of the worst cases, breathing the air of a ward, at that time full of Cholera cases, had got an immunity or exemption from the attacks of the disease. Does this take place in the Plague Lazarettos, or with such free and unrestricted intercourse in other diseases known or considered to be infectious ?

So far as relates to the hospital, we have given a series of facts, that would lead us to conclude, that the disease is not infectious. But we are prepared to go even farther, and if possible, to give an instance more conclusive, as regards the men in the barracks, which the kindness of our friends of H. M. 39th Regiment has furnished us, since it is only by a faithful record of each circumstance, that we can ever hope to throw any light on the laws which govern this disease. True, it may be deemed inconclusive. It is the best we possess, from the very nature of the inquiry. Besides, in camps and military communities, and indeed in society in general, the common relations of life require the most free intercourse ; hence, how easy it is to trace, by a little ingenuity and research, a communication amongst all its members. Also, how uncertain and difficult it becomes to separate, that which arises from contagion, or infection, and that which is caused by an epidemic state of the atmosphere itself. Therefore, many justly consider both states as essential, and appeal to the known phenomena of epidemical visitations of contagious

diseases, for the proof. Be this as it may, still the common experience of mankind has shown that Inoculation will produce the Small-pox, and this again, the natural Variola, and vice versâ, and therefore, there can be no doubt of its being communicated from one individual to another. Again, the marsh malaria will give a specific disease to those who are exposed to its influence. Yet, this is not under ordinary circumstances infectious, or till some new power is acquired in its action upon the animal frame, though this has been doubted. How are we then to reconcile the fact of 115 men, joining a regiment, during the prevalence of Cholera, and only one man getting the disease, if it were contagious. Thus, from the 21st March to the 23rd June, 1833, H. M. 39th Regiment had 140 cases of Cholera, which out of 750 men gives nearly a proportion of one seizure out of every $5\frac{1}{3}$* of the whole corps; whereas that of the Volunteers is 1 to 115! This detachment, joined on the 4th of April, at the height of the disease, from Hydrabad, after a march of 371 miles, was at once promiscuously mixed with the whole regiment, and yet only one solitary, mild case occurred. Can any of the phenomena usually ascribed to a contagious disease explain the exemption?

But I will give the entire Return, premising that the 39th Regiment had lately arrived from New South Wales, and had only been at this station since the 14th of February, 1833. Another curious

* Deduct the 115 men, and then it would be about 1 out of every 4.535.

circumstance is, that Major Poole's detachment, which arrived 11 days after the Volunteers, had the disease most severely, and lost 13 men. Unless we can suppose that the constitutions of the men seasoned to the climate could resist infection altogether, whilst the unseasoned soldiers, though in a high state of vigour and health, from New South Wales, were unable to do so. But this is not ordinarily the case with contagious diseases.

Return of Men, Women, and Children of H. M. 39th Regiment of Foot, attacked by Cholera, at Bangalore, from 21st March, to 25th June, 1833.

	Strength of the various parties.	Total Attacked.	Total Cured.	Total Died.	Of whom were Married Men.	Total Married Men died.	
Head-Quarters Men,	449	103	76	27	11	7	2 Men were twice attacked.
Volunteers arrived 4th April, 1833,	115	1	1	...	...	...	
Major Poole's Detachment arrived 15th April, 1833,	186	36	23	13	2	1	1 Man twice attacked.
Total,	750	140	100	40	13	8	
Women,	54	13	12	*1			* Having had premature confinement.
Children,	114	14	4	10			

(Signed,) R. M. Davis, M. D.
Asst. Surgeon, 39th Regt.

N. B. Relapses, None. Second Attacks, Three—all recovered.

The foregoing table is very curious; for however we may explain the fact that the Volunteers from

Hydrabad escaped the disease, and Major Poole's party, which arrived later, was so predisposed to its attacks, since the cholera was alike prevalent in the 13th Dragoons, amongst all classes, the seasoned, as well as those, who had been but a short time in India, it corroborates our remarks of the greater mortality amongst the married men in proportion to the seizures.

We may theorise or speculate, and though it be impossible to answer difficulties, or explain contradictions, yet how are we to reconcile the occurrence of but one case of Cholera amongst the Volunteers, who joined the 39th Regiment ? Assertion on either side is no proof to those, who wish to arrive at the truth, and to separate the entangled web, which the ingenuity of man has thrown over these inquiries. Under such circumstances, probably the plain good sense of the mass of mankind, aided by a lengthened experience, may be allowed to judge pretty correctly ; and here we shall find, that after contemplating its invasions for 17 years, among many millions of persons, few now believe the disease infectious. Such therefore I may say is the state of belief in India. The natives may for a time desert their homes or their villages, but this is to fly from the place, and not from one another. They return as soon, as they think the malady has subsided.

Nevertheless, truth is, or should be, the paramount consideration, and as this has been our

motive for extending this inquiry to so protracted a length, we give the following particulars, as no partial or biassed relation of facts will ever influence such inquiries, or prove creditable to their authors. It has been stated, that 34 married men had this disease, also 22 women and 33 children. The following will show the proportions in which each family was attacked.

Of the 34 men attacked, all of whom had wives or mistresses*, and 62 children,
- 18 had neither wife nor children attacked.
- 6 had only children, viz. nine attacked out of seventeen.
- 4 had only their wives attacked.
- 1 had his wife, and one out of three children attacked.

Of 22 women attacked, who had 28 children,
- 16 had neither husband nor children attacked.
- 4 had only their husbands attacked.
- 1 had husband and child attacked.
- 1 had only her child attacked.

Of 33 children attacked,
- 22 had neither father nor mother attacked.
- 9 had father only attacked.
- 1 had mother only attacked.
- 1 had father and mother attacked.

We shall offer no analysis of the foregoing facts. Already our observations on this most in-

* An indulgence allowed soldiers of having Native women to reside with them.

teresting subject have been too extended, and it would be needless speculating on the anomalies of the disease, or endeavouring to reconcile its contradictions, which would lead to no certain conclusion, besides entangling us in all the doctrines and speculations, relative to contagion, recorded in the annals of medicine; and, after all, leading into a labyrinth of discussion and conjecture.

Dissection.—No light is thrown by dissection on the phenomena of the disease. Indeed, it often ends fatally, in too short a period, to admit of organic deranged structure; and there are many cases on record of other diseases in which the injury to the vital organs is sufficiently great to extinguish life, and yet not to leave traces which the minutest pathological inquiry can detect. Such has often been the case in Cholera.

The principal diseased appearances are vascularity, and congestions of dark blood, in the cerebral, thoracic, and abdominal cavities, with marks at times of inflammation in the stomach or intestines. But as some, or all of them, are absent; as many of them take place in articulo mortis, or after death itself; and as even where the spinal chord was examined, no unequivocal diseased appearance could be detected, we may fairly conclude, that the pathology of this disease is still enveloped in doubt and uncertainty. The more common diseased appearances are certain-

ly referable to what takes place during the progress of the disease. We find the balance between the arterial and venous system early disturbed, and the accumulation takes place in the veins, for the pulsation in all the arteries is feeble, and after death, great congestion is observed in the large venous trunks.

The suspension of the healthy or vital action of the lungs on the blood, renders that fluid incapable of secretion, nutrition, exhalation, &c., and it therefore "follows as a necessary consequence, that the portion of fluid which is usually taken up, from the arterial system, by these different functions, flows on into the venous system, together with the portion, which should naturally pass thither; hence these must be contained in greater quantities than usual in the veins*."

We should therefore say, that the functions of the brain are affected by the disease, and that respiration and circulation are in consequence sympathetically changed, in their operation; in the former as evinced by the dark state of the blood, and the coldness of the respired air; and in the latter, by the languor of its motions; and thus is excited all the subsequent train of operations observed in the disease. The blood is no longer in a state to stimulate the brain, it no longer supports animal heat; the temperature falls, secretion is suspended; the heart enfeebled, no

* Vide Bichât.

longer propels the blood with its usual energy, accumulation takes place in the Vena Cava, and right side; the exhaling vessels lose their tone: hence profuse cold sweats, and a copious aqueous exhalation from the stomach and intestines; the brain and nerves have lost their power over the muscles, voluntary, as well as involuntary; hence cramps, spasms, vomiting, purging, and indeed the struggles which are indicative of death itself.

Treatment.—This we may divide into three stages:

1st. At the very beginning of the disease.

2nd. When the malady has more fully developed itself.

3rd. When the exhaustion, the sinking, the collapse, &c. indicate, that the struggles of death are supervening, or becoming superadded, to those of the disease.

This is an arbitrary arrangement, since the Protean nature of Cholera but too often defies all methodical division; yet is it useful, in a practical point of view, and is applicable to the great majority of cases, in the generality of epidemics.

In the first stage, at the very beginning, it was usual to put the patient into bed, cover him warmly, to restore or retain the animal heat, of so much consequence in the subsequent treatment of this disease, and to give him a scruple of Calo-

mel and two grains of Opium. This alone, in the slighter cases, at the very commencement, has cured the patient. When the disease is more advanced, or the pain at the epigastrium is increased on pressure, and the pulse will admit of it, from 20 to 40 ounces of blood is taken, or 18 to 30 leeches applied to the epigastrium, with hot fomentations or semicupium, and a large dose of Calomel and Opium is exhibited, and smaller ones every hour, or every two hours; or as often as they are rejected by the stomach, with occasional doses of Magnesia. If purging has supervened, anodyne enemas, and very small quantities of any acid drink, to allay the thirst. Should these fail, or the disease advance into, or what is more common, the malady have arrived at, the *second stage*, we are obliged either to stimulate or deplete, as the symptoms appear to indicate. This is really difficult to decide. If the pulse is soft, feeble, and slow; the surface cool and relaxed; the countenance anxious, pale, and distressed; the eye sunk; the pupils dilated, &c. in addition to Calomel and Opium, we generally gave some brandy or wine, or other stimulants, and only bled or applied leeches as soon as re-action took place. If the pulse, though small, was hard or sharp, the voice good, the pain or griping or retching violent; the skin dry, the temperature good, and the spasms, if any, strong, we bled or applied leeches. In the whole progress of the disease, the object was to rouse, or restore,

the vital energies, to restrain or moderate excited action, and to relieve urgent symptoms. Those who have seen much of the disease must be aware how uncertain all this is—how difficult even at the bedside of the patient, and how totally vain to transcribe it into a Report, much more, to explain the effects of the remedies. In some cases, every treatment alike appearing to benefit, in others to fail, or to do positive harm. That which at one time rouses, at another sinks; that which in one instance relieves, in another appears to do harm, and even experience often seems but to mislead. Most of the epidemics, which we have seen, bear a marked or distinct character, and in some measure, appear to be benefited by a modification of treatment—in one by depletion, in another by stimulants, &c. The few first cases will generally give an insight, as to the general nature of the treatment most likely to be suitable; as the disease remits, it becomes less violent, often complicated with the endemics of the country, and depletion does then benefit in almost every case. So that the disease itself not only varies in different epidemics, but varies in the same epidemic, whether the individual be attacked early or late during its prevalence; and as the disease itself is varying every moment of its progress, we may be prepared to find, that at its very beginning, any stimulant or narcotic may give relief; whereas, when more advanced, we have the whole range of stimulants to excite, and the

infinite variety of treatment lauded and praised, more or less suited to its progressing, and varying character, till we come to that state which we have called the *third stage*, when the struggles for life, over those of death, leave little to science, or experience, but to contemplate the dreadful disturbance, which so awfully characterizes the termination of this appalling malady. In some, all these appear with such rapidity, as to leave no time for the action of medicine, or the applications of art. In others, though more slow yet equally certain, and apparently alike unrestrained. Still, so long, as there is life, so long is there hope. For Cholera, like some of the poisons, appears to wear itself out, and the most agonizing and fatal struggles often are succeeded by convalescence. Hence, the empirical air, which characterizes all that relates to this subject—hence the numerous nostrums and infallible remedies for this fatal disease; whereas the truth is, that in its earliest stage, and in the milder epidemics, almost every one recovers by the most contradictory, and inexplicable treatment. In its more advanced form, by judiciously adapting the remedies, to the varied phenomena of the complaint, success is the most general result; whereas when the collapse is very perfect, little can be done, and death in one-third, or one-fourth, triumphs over the powers of nature, or the assistance of the physician. We shall therefore merely give a brief enumeration of such remedies, as were used in the late epidemic.

Bleeding or leeches were had recourse to, as often as the state of the pulse, the powers of the system, the stage of the disease, the violence of the pain, or the nature and degree of the malady would admit. Calomel in scruple, in ten, or five grain doses, with Opium, every second, third, or fourth hour, or as often as the vomiting or purging returned, with anodyne injections, after every second motion. *Frictions* simply, or with the Oil of Turpentine, volatile Liniment, hot salt, &c. *Blisters* and mustard poultices to the chest, epigastrium, and lower extremities: the former to the neck and spine. Nitro-muriatic Acid, with Laudanum, Ipecacuanha and Opium, Calomel and Antimony, Quinine, also with the Sulphuric Acid, the Muriate of Soda, stimulants, brandy, and wine, with or without sago or arrow-root, beer, Camphor, Ammonia, and the various tonics; saline draughts, acid drinks, magnesia; warmth in every form, as fomentations, hot bottles of water, hip bath; every variety of purgatives, as indicated in the progress of the disease.

Saline, or indeed any injection into the veins was not tried; the apparatus not appearing quite suitable; the theory on which it was recommended unsatisfactory and assumptive; and even disproved by Dr. Thomson's analysis of the blood; and the result by no means commensurate to the risks, and questionable nature of the practice. Besides which, the blood is too often unaltered*,

* In many cases, natural, and even florid.

to ascribe to it the symptoms of the disease; and therefore the changes observed in its sensible qualities, are more likely to arise from the depressed state of the vital powers.

We conclude this subject, not that we have noted all we wished to say; but that our Report is already too detailed. The subject actually extends and grows as we proceed, and each fresh remark, becomes the prelude to more extended comments.

Bangalore, Jan. 1834.

ON THE

CLIMATE OF VAN DIEMEN'S LAND

AS A RESORT FOR

INVALIDS FROM INDIA.

By T. E. DEMPSTER, Esq.

Presented Oct. 4, 1834.

Several causes have hitherto combined to prevent my complying with the request, you made some months ago, that I should furnish you with a short account of Van Diemen's Land, considered as a place of resort for invalids from India. The few observations I have now to offer, are the result of a limited experience, and must be found deficient in minute and accurate detail. I may however hope to be able to convey a generally correct idea of the climate, and to indicate the class of invalids, that may expect to benefit by a temporary residence in the colony. The island of Van Diemen's Land lies between the 42nd and 45th degrees of south latitude, and 145th and 158th of east longitude. It is situate at the southern extremity of the great continent of New Holland, from which it is separated by a strait about 30 leagues wide. It is begirt by a bold and rocky

coast, presenting to the stormy southern ocean every form of rugged cliff and promontory.

The general appearance of the country in the vicinity of Hobart Town, (of which alone I can speak,) is that of one vast and dense forest. Steep hills of various heights, covered from the base to the summit with tall trees, rise in succession as far as the eye can reach, leaving little plain or level ground between. The higher hills, or such as assume the character of mountains, become bare of trees as they attain a certain altitude; and generally terminate in a rugged crest of basaltic formation.

A stranger, who has heard of the rapid progress of the colony, may naturally suppose, that the labor of man has already produced a considerable change in the aspect of the country; and may prepare himself to see extensive tracts of clear and cultivated ground. Nothing can be more opposite to the actual scene, he views on sailing up the Derwent. The quantity of land, that has already been reclaimed from nature, and subjected to the plough, (although really considerable,) appears to the eye utterly insignificant, when contrasted with the vast surrounding forest, which will probably never be entirely subject to the dominion of man.

There is perhaps no country of equal extent, within the temperate zone, in which the cultura-

ble land bears so small a proportion to that, which is barren and unfit for the plough. Hardly one-third of the island has yet been located, but even now, the new colonist finds the greatest difficulty, in selecting an eligible spot to settle on. The remaining parts of the island are as yet imperfectly known; but are generally believed to be barren, mountainous and nearly inaccessible.

In the Hobart Town, and New Norfolk districts, the proportion of arable land, is much smaller, than in most of the other settled parts; and the soil is of very unequal quality. The narrow strips of level ground near the margin of rivers, and the low land or "bottoms" between the hills; consist of the richest alluvial soil, and produce food for man in unexampled abundance;—but in other situations, the land is of various quality, and requires correct agricultural management to render it productive. Van Diemen's Land, although well supplied with water, for all domestic purposes, is remarkably deficient in navigable rivers. Of these the Derwent is the most considerable, and is at its mouth, a river of great promise. Before reaching Hobart Town, it is more strictly an arm of the sea; just above the town, its channel becomes somewhat contracted,—but it soon again widens, and, for a distance of 12 or 14 miles, assumes the appearance of a magnificent salt-water lake; it then puts on the true character of a river, running for a farther distance of 10 or 12 miles in a deep, narrow and winding channel;

after which (like most of the other Australian rivers), it soon degenerates into a mere mountain-torrent. None of its tributaries are navigable, and although dignified with the name of rivers, many of them are only streams of clear water running down from the hills over rocky beds.

I arrived at Hobart Town on the 12th of March, 1833, and shall endeavour to describe the seasons in the order, in which I experienced them. The weather, on my landing, gave me no favorable impression of the climate. The wind blew with great violence from the south, accompanied by frequent and heavy showers; Mount Wellington was entirely hid in dense vapours, and the air felt cold and piercing in the extreme. But my sensations had been rendered morbidly acute by ill health, and recent exposure to a very high temperature.

March, April, and May correspond to autumn, in countries north of the equator. The mean temperature of this season is, I believe, correctly stated to be about 65° of Fahrt.* The air is, in general, clear and bracing, and the whole season would be esteemed temperate and agreeable in

* I failed in obtaining a correct Meteorological Register at Hobart Town. The mean temperatures here given are taken from a useful little publication "The Van Diemen's Land Almanac, for 1833." From this source also, I have refreshed my recollection of several points relating to the seasons; but I have advanced no statement, which does not correspond with my own experience.

any part of the world. Little rain falls in March and April, but sometimes a good deal in May. During a great part of the latter month, (in 1833) it blew a gale, from the N. W. Some calm days in March were warm during the forenoon, and the heat of the sun inconvenient, for a few hours; but the evenings were always so cold, as to render a fire agreeable, and warm clothing indispensible.

The winter months are June, July, and August: this too is the rainy season; but rain does not fall as in tropical climates. There are considerable, but uncertain intervals of fine dry weather. The average temperature of winter is about 44°. The winter of 1833 was admitted to have been unusually mild. No snow fell on the low ground, either at Hobart Town or New Norfolk. For a few mornings only, did I observe the whole country white with hoarfrost. The tops of the neighbouring hills, of moderate height, were frequently covered with snow, early in the morning; but it melted and disappeared, after being exposed for a few hours to the influence of the sun. On the higher hills, it remained a longer time; and Mount Wellington, which is about 3000 feet above the level of the sea, retained a sprinkling of snow on its summit all winter. A part of "the western range" visible from New Norfolk, was white with snow, all the time, I remained on the island. The water in shallow pools, and in vessels placed outside the house, was frequently found frozen

in the morning; but it speedily melted. The severity of the winter, in different parts of the island, is very various, and depends on the elevation of the country. Although we had no snow at New Norfolk in 1833, yet in the neighbourhood of Bothwell, 34 miles distant, there were frequent and heavy falls. During the winter months, a dense fog often collects towards evening, and hangs over the course of rivers, and occupies the narrow valleys between the hills, leaving their summits visible above the mist. These fogs continue during the night, and early part of the morning, until they are dispersed by a breeze, which springs up from 9 to 11 A. M., again to collect at nightfall. In certain situations, they remain all day. This formed my only objection to the beautiful village of *New Norfolk**, where I resided :— its situation rendering it peculiarly liable to these fogs in winter. Hobart Town, and other places in the immediate vicinity of the sea, do not suffer from this annoyance. The winter is, I think, generally considered the most pleasant season of the year; and indeed, nothing can be conceived more delightful, than a fine winter's day in Van Diemen's Land. The rays of the sun give an agreeable warmth; the air is cool, dry, and bracing, but entirely free from chilliness; and the atmosphere has a clearness and transparency, of which I can convey no idea in words. The temperature stimulates to moderate bodily exercise,

* New Norfolk is 22 miles from Hobart Town, and is situated on the Derwent, at the extremity of its navigable portion.

but permits inactivity without pinching with cold. Of such days there are a large portion during the season.

The months of September, October, and November form the spring. The mean temperature of this season is from 50 to 60°. A good deal of rain falls; much of the weather is delightful, but there are frequent, sudden, and extensive atmospherical vicissitudes. These alternations of temperature are not so frequent as in the spring of England; but their range is greater. In this season should the unwary traveller be tempted, by the mildnss of the air, to mount the top of a coach thinly clad, he will soon have reason to repent his improvidence.

The summer months are December, January and February. It is difficult to give a correct idea of such a climate as the summer of Van Diemen's Land, the mean temperature of which is below 70°, and yet the thermometer occasionally ranges as high as 100 to 110°.

The forenoon is generally hot, and the sun so powerful as to render exercise, in the open air, irksome; but every perfect shade forms a cool retreat: during this time a light land wind blows. Before noon the sea breeze sets in, and with it comes a sudden and extensive fall of temperature. All may now go abroad without inconvenience, for the remainder of the day. The evening is

generally so cool as to make a fire pleasant, and blankets at night can seldom be dispensed with; such is the ordinary summer weather. The land or north-wind, instead of being so temperate as above described, is sometimes sultry and oppressive; and the thermometer rises to 90, 100, and even as high as 110°. It may be laid down as a general rule, that the hotter the land wind, the more sudden and extensive will be the fall of temperature, which is sure to follow. So early as November 1833, I experienced more than one good example of a Van Diemen's Land hot wind. The change, which succeeds these excessive heats, is most remarkable. While this "Sirocco" blows, all are oppressed with the sultry and heated atmosphere; suddenly the wind shifts, clouds collect, a smart shower falls, and the inhabitants are instantly transported, as it were, to another and entirely different climate. Fires are lit, great coats huddled on, and all moving about to keep themselves warm.

I used to be much puzzled, how to clothe myself at this season; warm clothing was oppressive during the forenoon; but if I ventured any distance from home thinly clad, I was sure to return pinched and benumbed with cold. Some of the oldest residents make it a rule never to put off their warm clothing, at any period of the year.

Having now given some separate account of each season, I proceed to notice the peculiarities

of the climate as a whole; and first I would particularly direct your attention to the sudden and extensive alternations of temperature, to which it is liable, especially during the spring and summer months.

The effect of atmospherical vicissitudes on the human body depends, I conceive, principally on three circumstances, viz. the suddenness of the change, its extent, and the condition of the weather before such change occurs—of these, the last appears to be of most importance.

Small and frequent diurnal vicissitudes, such as take place in England, seem to produce little injurious effect; but a sudden accession of cold, occurring after a *long period* of hot weather, is universally admitted to be highly dangerous and hurtful. In Van Diemen's Land the alternations of temperature are peculiar, and correspond to neither of the above cases. In summer there is generally a single diurnal change, but its range is considerable. Sometimes the heat is excessive, but it seldom continues above a *few hours*, and is invariably followed by a great and sudden fall of temperature.

It is a commonly received opinion in Van Diemen's Land, that these vicissitudes, instead of being deleterious, are positively salutary. That a sudden fall of the thermometer, to the extent of from 30 to 50°, must be injurious in many morbid

conditions of body, cannot be doubted; but universal experience seems to prove, that to the great mass of the inhabitants these changes are at least innoxious.

The cause of this may be illustrated by a familiar example. Suppose a healthy individual to have taken as much exercise in a warm day at home, as to raise the temperature of his body to its highest standard, but without having carried it so far as to produce fatigue:—such a person may suddenly plunge into cold water, not only with safety but with advantage:—he will rise from his bath invigorated and refreshed. But should he continue his exercise so long, as to induce exhaustion and profuse perspiration, and *then* use the cold-bath, he will expose himself to imminent danger. In Van Diemen's Land the healthy and vigorous inhabitant is occasionally subjected to a high temperature for a few hours; true, he is oppressed and incommoded, but neither exhausted nor debilitated; in fine, he is much in the condition of the person in the first supposed case. He is then suddenly plunged, not into cold water, but into cold air:—the effect is the same in kind, viz. tonic and invigorating.

From what I have stated it would appear, that the climate of Van Diemen's Land is, on the whole, agreeable to the feelings, and conducive to the health, of its European inhabitants. Their appearance is eminently hale and robust, and the

beauty of the children, and rosy complexions of the women, are most striking to the eye of the Indian visitor. All the domestic animals of England thrive and multiply, and retain the best qualities of the stock, from which they spring. Almost every fruit, vegetable, tree and shrub which the British Isles produce in the open air, grow in Van Diemen's Land, in increased luxuriance and fruitfulness.

The orange, which comes to great perfection at Sydney, will not bear in Van Diemen's Land. Grapes ripen in the open air,but theyrequire much care, and a warm exposure. Apples, gooseberries, raspberries, &c. are abundant and excellent.

"The great extent of sea gives a particular character to climates south of the equator; the winter being mild, and the summers cold. Thus, in Van Diemen's Land, corresponding nearly in latitude to Rome, the winters are more mild, than at Naples, and the summers not warmer than those at Paris, which is 7° farther from the equator. The effect on vegetation is very remarkable. Tree ferns, for instance, which require abundance of moisture, and an equalization of the seasons, are found in Van Diemen's Land, in latitude 42°, and in New Zealand in southlatitude 45.*' There are some splendid specimens of the tree fern growing in a deep, shady, and moist valley in the neighbourhood of New Norfolk.

* Lyell's Geology.

The climate of Australia, has undoubtedly the effect of distinctly modifying the human race, even in the first generation. Almost without exception, the children have fair hair, and blue eyes :—they grow up tall, and thin, and soon arrive at puberty ; in character they are energetic, intelligent, and courageous, and believe themselves a great improvement on the parent stock. This is more strictly a description of the Sydney youth. The rising generation of Van Diemen's Land (for there the *first* generation is only yet rising), promise to assimilate to the character of their neighbours ; although I anticipate, they will excel them in " bone and muscle."

The cause of the occasional hot-wind, and the diurnal alterations of temperature, which occur during the summer months, will be found in the geographical position of the island.

Whatever the nature of the interior of the great continent of Australia may be, this at least is certain, that a current of air in its passage over its surface in summer becomes intensely heated. Van Diemen's Land being situated at the southern extremity of New Holland, and only separated from it by a narrow strait, is alternately exposed to the influence of the sultry north wind coming from the main land, and to the cold breeze from the open sea, as it rushes forward to supply the place of the air, which has been rarefied by the

action of the sun, on that vast tract of land. The insular situation of Van Diemen's Land forms its grand protection against the north wind. It is only when circumstances are favourable to its unobstructed passage across the channel, that the "hot-wind" is felt, in all its unmitigated violence.

The northern Island of New Zealand, although nearer the equator, than Van Diemen's Land, being removed from the immediate influence of the great continent, is (I understand) neither subject to hot winds, nor to alternate land and sea breezes.

I suspect the *extraordinary* degree of salubrity, which has been ascribed to the climate of Van Diemen's Land, is somewhat exaggerated. That several diseases of common occurrence, in European countries, have not yet made their appearance in that island, is certain ;—but this may hereafter, be found to depend on causes unconnected with climate.

In 1833, the whole population only amounted to 28,000. Of these a great majority may fairly be supposed to belong to a class, little subject to disease, viz. vigorous, grown up, and middle aged persons of both sexes, well fed, and well clothed ; and fully engaged in healthy and active out-door employments. They have not yet suffered from the evils, which arise from a dense and crowded

population, or from those, which attend the extremes of riches and poverty.

I believe the climate of Van Diemen's Land to be as well suited to the European constitution, as any in the world ; but as the inhabitants increase, and become congregated in large towns, I fear they must expect to come in, for a fair share of those ills, which flesh is heir to.

The supposed unusual fecundity of the Australians, may perhaps be accounted for on nearly the same principles.

During my residence at New Norfolk, I had an opportunity of seeing all the interesting cases of disease, which occurred in that district; and I daily visited the Colonial Invalid Hospital, an extensive and well-regulated establishment, containing about 120 patients.

The nature of the prevailing diseases might be conjectured from the account, I have given of the climate. They are Catarrhs, Cynanche Tonsillaris, Rheumatism, and Pulmonic Affections. Catarrh is, I think, less common than in England. I only saw a few cases of sore throat, but I understand it sometimes prevails in a severe epidemic form. Rheumatism, both acute and chronic, is often severe and obstinate. Acute inflammation of the lungs is of frequent occurrence, and if not treated in the most active manner, proceeds rapidly to a fatal termination.

I witnessed several cases of consumption. I believe I am fully justified in stating, that the climate is extremely injurious to persons predisposed to hœmoptysis; and that it is apt to excite to fatal activity, incipient tubercles in the lungs.

I was informed by a medical gentleman long resident in the Island, that no person born and brought up in the colony had died of consumption; but that a few children, who were sent to England for education, had been carried off by this disease on their return.

When I first arrived in Van Diemen's Land, no case of exanthematous disease had ever occurred. During the winter of 1833, I saw in the New Norfolk hospital a private of H. M. 63rd regiment, who was labouring under a severe and well-marked attack of Scarlatina; this was, I believe, the first instance of the disease ever known in the Island.

Puerperal fever showed itself (I think for the first time) in the autumn of 1833. In the district of New Norfolk, six or seven persons were seized, out of a very limited number of females, and of these three died.

Ophthalmia is common, and often ends in impaired vision.

The number of persons afflicted with mania, and structural diseases of the heart and great ves-

sels, is, I think, very great :—they are almost all convicts.

Syphilis in all its forms, is now common enough.

Idiopathic fevers generally are of rare occurrence. Intermittents and remittents almost unknown. This last fact would seem to prove, either that miasma is not generated at all, or only in so diluted a form as, to be innoxious.

The mean temperature even of summer is extremely moderate, and any condition of the atmosphere, favourable to the production of miasmata, cannot continue long in operation, by reason of the frequent vicissitudes.

The annual quantity of rain, which falls, is less than in England. The country is in general elevated, and the water speedily carried off by running streams. High winds prevail at all seasons of the year ; and the tall and scantily-leaved forest trees admit a free circulation of air, through most parts of the uncleared country. Dead leaves, and other decaying vegetable matter are consumed by the fires, which often take place in the forest during summer. It is worthy of remark, that scarcely a forest tree is to be found in any part of the Island, which does not bear on its trunk marks of burning.

In estimating the benefit to be expected from the climate of Van Diemen's Land, it is well to

bear in mind, that our experience of its effects on invalids from this country is yet limited; and that it may not, of itself, warrant any very confident general conclusions. This experience, however, so far as it goes, is eminently favourable. Every one, of whose case I could obtain an account, had experienced great and decided benefit; with the exception of a few persons, who arrived in the colony, either labouring under, or having a strong predisposition to thoracic disease. But several, who in the end afforded the most triumphant proofs of the unaided effects of the climate, did not begin to improve, until they had resided many months on the Island.

A gentleman of my acquaintance, now settled in Van Diemen's Land, arrived from India in a miserable state of health, and labouring under chronic liver affection. For the *first year*, he experienced little or no relief; after which he rapidly improved, and is now one of the most healthy and active persons, I ever saw.

In recommending a voyage to Van Diemen's Land, the medical practitioner, who has made himself acquainted with the nature of the climate, will of course be guided by general principles. But so far as our present knowledge and experience go, I think we may safely conclude that, with a very few exceptions, all invalids for whom a change of climate is deemed necessary, may hope to derive the fullest benefits of such change, by a temporary residence in Van Diemen's Land.

Van Diemen's Land has, in one respect, a great advantage over all the other places in the Indian seas, usually resorted to by invalids from this country. The towns, the streets and shops, the inhabitants, manners and customs—all are English; every thing tropical is left behind and forgotten for a time; old and pleasing recollections renewed; and morbid associations and habits, broken and destroyed. The advantage of such moral remedies, in aiding the cure of long continued chronic disease, every physician will fully appreciate.

I do not know, what objections may be offered to the following suggestion, on the score of expense, but I cannot doubt, that if all the convalescent depôts were abolished, and the sick of the European regiments, sent to *one* well regulated sanitarium at Hobart Town, a vast number of men would be yearly saved, who are now lost to Government, either by death, or by being invalided, or discharged and sent home, as unfit for longer service in India.

I regret, I am unable to add any satisfactory account of the climate of New South Wales. I arrived at Sydney on the 20th of January, and left it, on the 2nd of March. During the whole of this time, I suffered every inconvenience of a hot climate in full perfection. One visit of the "hot-wind" lasted five days, without intermission; the thermometer rose to 106°, and the climate exactly

resembled that of the Upper Provinces of India, in April and May. Two of my children were seized with fever, and one suffered severely. But there was no unusual degree of sickness in the town, during these great heats; and every one went about his ordinary occupation in the open air, without even thinking of the protection of an umbrella. The inhabitants assert, that all the other seasons are delightful—more mild and less variable, than in Van Diemen's Land.

It is probable, that greatly debilitated invalids, would do well, to spend the *first* winter in New South Wales. Sydney is a handsome and populous city—provisions are cheap, and all the comforts and luxuries of a large town available.

OBSERVATIONS

ON

THE FEVER WHICH PREVAILED AT HOWRAH,

DURING THE MONTHS OF JUNE AND JULY, 1834.

By DUNCAN STEWART, Esq. M. D.

Presented Aug. 2, 1834.

I TRUST, that I shall not be thought to occupy the time and attention of the Society unprofitably, in laying before the present meeting, a brief account of the prevailing character of the fevers, which have occurred, during the last two months, within what may be denominated the Howrah portion of Calcutta.

Those of my brethren, who have been longest in practice, will most readily acknowledge the impossibility of classifying all cases of fever, after any exclusive system, or of following any routine of practice in their treatment. No where do fevers modify their "type" so often, or seem at each successive period, during the year, to change their general "nature," requiring necessary and important corresponding modification

of treatment, more than in Bengal. Besides the occasional occurrence of fever cases, during particular seasons, which assume a different aspect from their fellows of the hour, I think that there may be observed, during the course of each season, a great and remarkable progressive change in the nature and character of that, which prevails epidemically. At its commencement, for instance, we may have cases setting in severely and suddenly, with violent and well-marked symptoms ; during its course, a peculiar tendency frequently developes itself, lasting perhaps for not more than a day or two ; as, for instance, to Cholera, to rigors, to apoplexy. Towards the decline of the epidemic, its approaches may be so obscure and insidious, as to elude any but practised observation, so that when its characteristic elements are fully developed, the period for successful action may be found to have elapsed.

Precluded in a great measure from the mutual intercourse which my brethren enjoy, owing to the intervention of the river, and the arduous and engrossing nature of my duties, I have been prevented from knowing much of the present fever, as it has prevailed, and is I believe, still occurring in Calcutta; but in the hope, that the present may give me an opportunity of "comparing notes" with some of the more experienced and more qualified observers and practitioners of the city, I hasten to invite their communications and remarks, by a frank disclosure of my own.

It may be necessary here to mention, that the suburb of Howrah extends along the west bank of the Hooghly, from the Botanic Garden to Gussery, a distance of ten miles; that the bank is, for the greater part of the way, low, shelving, and muddy, and subjected twice a day to the tide. The village of Howrah, in the middle of this district, and directly opposite to Calcutta, is thickly inhabited by a hard-working class of people, European and East Indian, chiefly employed in the various ship-building dock-yards and manufactories on that side, or occupied in the small craft on the river. There are still, in many parts of the village, large and stagnant shallow tanks, and marshy foul drains, covered with rank vegetation, and till within the last few years, the high street of "our village;" and the roads in its neighbourhood, were kutcha, (i. e. of mud or clay). When to such elements of malaria was added the dense population of native labourers, to the number of 6 or 7000, employed daily in the dock-yards, salt golahs, &c., and marching home in troops at night, to their wretched ill-thatched straw hovels, and their frugal rice-fare, the reproach, which belonged to the place, when I joined the station, seven years ago, of being frightfully unhealthy, is sufficiently accounted for.

Within the last few years, however, by the benevolent and liberal exertions of the residents, and the concurrent aid of our late worthy magistrate John Master, Esq. a good puckah road and seve-

ral puckah streets have been made through the town, many of the worst tanks have been filled up, some marshes effectually drained, and close ditches opened out. There has likewise been established, by subscription, a native hospital and dispensary, for the relief of the poor, which, according to the public report for last year of my zealous and able deputy and friend, Dr. John Jackson, has afforded medical relief, and the means of temporary subsistence to upwards of 6000 individuals, 280 of whom were treated in hospital, being cases of acute disease, or such as required surgical operations.

After an absence of two years, for the recovery of my health, I resumed charge of the district on the 15th of June last: Dr. Jackson had been compelled by fever to abandon his post a week before; and upon this day, his deputy, Mr. Thomas Russel was attacked by fever, with urgent head symptoms. A young friend of mine, a fellow passenger, was taken ill in my house the same day. Pandora's box seemed to have flown open upon my arrival, three new cases occurred the next day, two more on the following, and so on, until my list of fever patients amounted to 18. During the month of July, 34 new cases of fever were added, making in all 52. The history of each I do not of course propose to detail, but simply to record the general character of the symptoms, the progress, duration, treatment, and termination of the epidemic, and to attempt to trace the changes,

which were observed in its character and symptoms to their real or imaginary causes. Of this number, there having been but one fatal case, and that striking and novel, (at least to me,) in its symptoms, I give it first; although in point of time not entitled to precedence.

Mr. B—, of the Pilot Service, had been to visit a sick friend upon the 8th of July, the forenoon of a very hot day. He walked a considerable distance, and in the evening, feeling very ill, took a dose of Calomel and Colocynth, and next morning, a dose of Jalap. When visited for the first time at 9 o'clock A. M. of that day, he was in a high fever, with a flushed face, suffused eyes, hot skin, thirst, extreme restlessness, and wildness of manner and countenance; his physic was griping him, and not acting well. He was immediately bled to lb. ij. had his head shaved, and bathed with cold water. At 2 P. M., he was calmer, and more sensible, but still flushed, with a quick, hard pulse, dry skin, a loaded dry tongue, and complaining chiefly of gripes; the belly was hot, but soft; no pain was caused by general or local pressure, however directed. The griping pains came on in fits, without sickness of stomach, and seemed to shoot from the pit of the stomach to the right dorsal region: relief was obtained by pressing the pillow to the belly, and by hot bottles; he was lying with his knees drawn close up to his chin. Venesection was repeated to lb. ij. an enema with oil and salt was administered, and directed to be repeated

after an hour. It brought away masses of accumulated fæces, and after sitting in a tepid bath, at the temperature of 95°, for half an hour, he was ordered to take

R. Calomel. ℈. i.
Sonap : gr. x.
In three pills.

At 9 P. M. he was asleep, and perspiring; he declared himself free from pain. Pulse 110; had had no stool since last visit.

R. Calomel. gr. xv.
Ipecacuan. gr. iij.
Opii gr. i.
Extract. Colocynth. Comp. gr. xv.
In four pills, to be taken immediately, and
Ol. Ricini ʒ i. at four A. M. to-morrow.

Visited on the 10th July at 7 A. M. He had slept till midnight, when he became again restless, tossing about in great pain, which he said quite doubled him up. He is confused and incoherent in his answers; the eyes less red than yesterday, but the conjunctivæ quite yellow; the tongue thickly furred and yellow: has no sickness at stomach; urine is scanty: there has been no stool all night.

The pains of loins are much the same, and shoot down to the pelvis; pulse 120, and hard; pressure and warm fomentations seem to give relief, and a bag of hot bran is kept round the body: there is

no fullness of the right side, but some degree of pain is felt on pressing the left.

Reptr. V. S. ad uncias xvi.
R. Misturæ Camphoræ ʒ i.
Vini Antimonial. gtt. xii.
Ft. haust. omni. hora. sumend.

Noon.—Evacuations of light yellow mucus, with little bile, and some thin fæces; heat of surface continues, with tossing, thirst, and great incoherence of manner; head is kept cool assiduously by affusion of cold water from a tea-kettle. Apply 18 leeches to the right side; continue the draughts.

9 P. M.—He is perspiring profusely; pulse rapid and unsteady: has had several thin watery olive mucous stools; jactitation continues, but he is much more composed and sensible in answering questions: the pains have not been relieved, and are now almost constant. A blister was applied to the back, and one to the epigastrium, and

Pil. Hydrargyri. gr. vi.
Pulv. Ipecacuan. gr. ij.
Camphor. gr. ii.
Extract. Hyosciam. gr. iv. in pills, were given.

At midnight, I received the following note from his wife: "I regret to inform you, that Mr. B. continues still extremely restless, and suffering severely from pains about his back, which will not allow him a moment's rest, and he is continually begging for relief, from his present sufferings.

"Mr. B. feels so dreadfully low and weak, that he can scarcely hold up his head, but he is not feverish to all appearance, and as far as I can judge, rest seems to be what he greatly needs."

Towards morning, he became quite cool, calm, and free from pain, addressed his family with great composure, telling them that he knew he was dying, and notwithstanding the administration of warm sago and brandy, &c. he continued to sink, and expired at noon of the fourth day. The case had partaken throughout of such violent and conflicting symptoms, that I was greatly at a loss to know, whether to call it one of acute gastrodynia; of gall-stone; of renal calculus; or inflammation of the cerebral tunics. The post-mortem examination proved it to be not exactly either of these. The bowels and omentum were pale and healthy. The colon quite empty. The stomach and duodenum a little thickened in their coats. The mesentery and its glands pale and healthy; the liver was more pale than usual, and not gorged with blood or bile: on turning it up the gall-bladder was found largely distended with green bile, the ducts swollen and flaccid; the gland in the capsule of Glisson, at the mouth of the ductus communis, where it enters the Duodenum, was acutely inflamed, enlarged to the size of a filbert, and of a bright pink colour; the small gland, at the junction of the ductus cysticus and ductus hepaticus, was likewise swollen to the size of a French-bean, but was pale and soft. There was scarcely

any bile in the duodenum: the spleen was enlarged a little, and broke to pieces on handling; it was gorged with black blood. Upon its anterior surface, and free from attachment of any sort to surrounding parts, was a large white horny cicatrix, three inches long and one quarter of an inch thick: the spleen was puckered in towards this line, like a lady's reticule. I can but presume it to be the cicatrix of an old abscess which burst into the abdomen, as I could get no account of the case, except that in 1820, he had suffered from spleen at Chittagong. The head was not examined, the kidnies and pancreas were sound. The case is interesting, as illustrative of the truth and accuracy of Mr. Twining's observations regarding this gland, at p. 262. of his work, on Diseases of India, for directing our attention to which, the profession is deeply indebted to him. Considering the healthiness of all the other organs in this case, I think we are sufficiently warranted, in concluding the above symptoms to be pathognomonic of the particular affection there alluded to*.

* A gratifying confirmation of Mr. Twining's observations and views is given by M. Andral, in his *Precis d' Anatomie Pathologique*, Lesions de Ganglions Lymphatiques—"Dans l'abdomen les ganglions lymphatiques peuvent etre, d'une manière toute mécanique, la cause de plusieur maladies."—" Accumulés Autour des canaux biliaires, ils en rapprochent les parois, la bile ne coule plusque difficilement dans le duodenum, et un ictère en est le resultat." " J'en ai vu d' autres occuper la place de la vesicule biliaire, qu'ils avaient videe, applatie, et atrophiée."

Of the early fever cases, (those, viz. which occurred about the middle of June, after the first rains), the greater part were continued, distinctly referrible to some error of diet, exposure, or cold; coming on abruptly with a chilliness, pains in the back, loins, and knees, followed by nausea, head-ach, hot-skin, thirst, &c. In five cases, the head seemed to suffer most: one of these was characterised by a pulse, which for three days did not rise to 60, there was no flushing of the face, redness of the eyes, head-ach, nor hot-skin, but a great unwillingness to speak, a slowness of answering, and apparently of comprehending questions: intolerance of light and obstinate costiveness. In a second, the pulse continued at 80: there was little or no heat of body, a clean tongue, and not much thirst; the cerebral symptoms were drowsiness, continued pain in the back of the head, and intolerance of light and noise. Of the other cases of continued fever the principal determination seemed to be to the mucous membrane of the bowels, and to the liver; the secretions of these organs being irregular, and of a highly irritating sort, causing perpetual nausea and fatiguing retching; the pulse was generally quick and hard, the heat of the body pungent, the tongue dry and pointed, of the colour of an old brick, with red edges, and not becoming furred with any brown or thick mucus, until the third day, when freer secretion had re-commenced. In all these cases, venesection was freely and repeatedly employed at the commencement, followed by

scruple doses of calomel immediately, and these by doses, night and morning, of grs. 10 of Calomel. and grs. 15 of Colocynth, with a purge of compound powder of Jalap at noon : leeches and blisters were useful towards the end of the case ; the tepid bath in cases of much gastric irritation was found very beneficial, and the cold dash on the head had a most soothing influence. The most remarkable circumstance, at that time, which fell under my notice, was the proclivity to cholera ; one lady was attacked with it at two o'clock in the morning, after taking the night before, of her own advice, five grains of calomel and four of James' powder ; and another seemed to threaten cholera from the use of Infus. Sennæ, and Infus. Rhei, with a little Epsom salts. I therefore in almost every case combined opium gr. i. with each dose of Calomel and Colocynth, and never found it to interfere at all with their operation ; on the contrary, the soothing effect of the opium on the irritable fibre was such, as will induce me in future, to make a freer use of that powerful drug, than I have been accustomed to do. None of these cases could bear Quinine during convalescence. The minutest quantity of it given in any way produced deafness, noises in the ears, and tightness across the eyes. Fortunately, none of them required tonics, and all recovered well and rapidly. About the beginning of July, several cases of Intermittent presented themselves ; of these four were bled at the commencement of the cold fit ; in one or two successive paroxysms. I did not find this boasted remedy of any use, either in

shortening the paroxysm or preventing its return, and attributed the recovery of all to Quinine. I should state, that one of these four cases of intermittent may, for aught I know, have been any thing else, since the lad had but one paroxysm, which came on accidentally, while I was visiting another patient in the same house; another of these has had a return of his ague this month, exactly at the same period of the moon's age.

From the 10th of June onwards, daily new cases of fever occurred, which for four or five days at first presented no peculiarity sufficient to characterise them. The patients themselves complained of an "inward heat," of general indisposition, loss of appetite, want of sleep, occasional flushings and chills. The tongue was always white or pale, and the bowels out of order, generally costive, and the stools of a paler colour than natural. There being an evident deficiency of the biliary secretion, these cases were usually treated with two College pills, at noon, at 6 P. M. and at bed-time, viz.

R. Pulv. Jacobi gr. ij.
Calomel. gr. iv.
Colocynth Ex. gr. vi. in two Pills.

and a dose of Pulv. Jalap. Comp. Castor Oil or Senna in the morning. These remedies certainly cleared the bowels effectually, but did not always restore healthy secretion; on the contrary, the evacuations were generally at first pale and fe-

culent, then green and watery fæces, then olive-coloured mucus ; then dark slimy, pasty, or frothy discharges ; then pure bile, mixed with the appearance like chopped tea-leaves ; but about this time, that is, after the fifth or sixth day, a morning rigor occurred at 10 A. M. followed by a hot fit, and a sweating stage towards five in the evening. A night paroxysm came on *without shivering* at 9 or 10 P. M. and lasted till three or four o'clock A. M. Next day, one hour earlier than on the former, the shivering again occurred, and the hot fit and evening paroxysm as before. A third paroxysm was usually prevented from coming on the next day, by large and full doses of Quinine, but its period was marked by slight heat of the hands and head, and the use of Quinine was intermitted until the period was over, and again resumed at four P. M. In none of these cases, some of which were very severe, and followed by long and great depression, did any such symptoms present themselves, previous to the first well-marked rigor, as seemed to call for depletion ; but during the hot fit in all of them, I am persuaded that the liver was relieved greatly, and a more perfect remission obtained from the employment of eight or ten leeches, the bites of which were allowed, by the help of a poultice, to bleed freely after their removal. The previous free purgation by Colocynth and Calomel, had likewise left the bowels so clear, and as far as their function was concerned, so quiescent, that full doses of Quinine, i. e. two or three grains in solution with Acid. Sulph. Dil. were borne every hour with perfect safe-

ty, the moment the fever-paroxysm had subsided; although at this time the liver was pouring out ounces of perfectly black bile, which passed along the bowels, and was discharged for several successive days, at this stage of the fever, perfectly fluid and clear, without a shred of mucus or an atom of fæces. In one case, nausea seemed to be caused by the passage of an atro-viridous fluid, which on agitation had an iridescent appearance, like that of cantharides on a blister, but this caused no quickness of pulse, and the nausea was speedily, and almost miraculously allayed by a mustard poultice. As soon as these free discharges of bile commenced, calomel was laid aside for Quinine, and a gentle stimulus supplied to the bowels by Pulv. Jalap. Comp. or Senna and Manna, daily. In a few days more the stools changed their appearance to a healthy brown colour; and in females, the first and most unfailing symptom of returning health was the re-appearance of the catamenia.

None of these fevers merged into intermittents, I question whether they ever do. They all occurred in persons, who had been some time in India: the most severe were in young persons, but one was, that of an old lady of 65, who had long suffered from liver complaint, and it was with fear and trembling, that after the occurrence of the second rigor, though her liver was still, I had much reason to think, congested, and her bowels by no means clear, and the tongue brown, that I ventured upon the Quinine in a full dose, feeling

assured, from the great depression, which came on after the subsidence of the second paroxysm, the cold clammy sweat, and hippocratic countenance, that a third paroxysm, if risked, would be fatal. After three doses of Quinine, two grains each every hour, she fell asleep, and before the fever period next day, she had taken 14 grs. of Quinine, so that I was able during the slight hot fit, which then occurred, to administer a gentle purge of Senna and Manna, and resume the Quinine at 3 o'clock P. M. Three days after this, the stools were quite healthy. It would be curious to know, what those circumstances are connected with, the irritable or nervous condition of the bowels, which preclude the employment of Quinine. We see it sometimes in minutest quantity produce violent effects, and at others, given in very large doses, when there appears a cloud of contra-indications against its employment.

A case is recorded, which occurred at La Charitè, where Quinine was given in the dose of 12 grains, by the mouth, at the same time that one ounce of bark was administered by injection, to "prevent the recurrence of a third paroxysm of a remittent fever," which they did. Nevertheless, the patient was far from being out of danger. The adynamic state became more and more marked, the black color of the tongue continued to make progress, a profuse diarrhœa came on, the paralysis of the bladder continued, and the urine was not expelled without the aid

of the catheter. The bark was continued for four days, " in order to prevent any possible return of the paroxysm." At the end of this time, the tongue, the lips, the teeth were covered with a thick black crust; the belly was flatulent, six or seven liquid stools were passed in bed; at the same time, there was a pungent heat of the skin, a frequent and small pulse, which disappeared under pressure, an air of stupor, or well marked torpor of the intellectual faculties, absolute loss of memory, extreme weakness, and ulceration of the integuments of the sacrum. " The return of the paroxysm was not now to be feared. In this state was it proper to regard alone the evident phlegmasia of the digestive organs, and administer emollients only, or rather to take into consideration the general state of the vital powers, whereof many symptoms seemed to indicate the real absence? Ought we to say with Brown, that to the period of general excitement had succeeded a period of depression; or with Broussais, that the forces were by no means absent, but were all concentrated round the digestive canal? Admitting this last opinion, could that be a sufficient motive for rejecting the use of tonics and stimulants. Do there not exist many external inflammations, where tonics are employed with advantage, both internally and externally to the inflamed surfaces themselves?"

The faculty decided against Quinine; however M. Lerminier prescribed a lavement of camomile

with five drops of essential oil of Juniper, embrocations of camphorated oil of Chamomile to the belly, and one pint of decoction of Polygola, one pint of a decoction of two grains of "*Racine d'Angelique,*" with two ounces of syrup of Carnations, to be given daily*.

"In 24 hours *after this treatment had been commenced,* the tongue was moist, not more than a little brown in the centre; the pulse fuller and less frequent; the expression of the face more natural; the eyes in particular were more in harmony with surrounding objects; the patient answered questions, and spoke intelligently."

Two days after this, (without any assigned reason,) the Quinine was recommenced, and the case went on well to a cure. The French certainly are no advocates for Quinine in fever. In this case it seems to have been used as a *dernier ressort*, and the writer is quite at a loss to account for its success, naively inquiring, "Would a similar success have been obtained, had gastro-intestinal irritation played the chief part, in this assemblage of frightful symptoms, which characterise the paroxysm? Perhaps, in this irritation, may exist the point of departure; but in it, does not reside the whole malady."

* "On sait combien Hildenbrand a vanté, dans les fievres graves, l'emploi de la racine d' Angelique."

Of 40 cases of fever, treated at La Charité, with Quinine, 26 are said to have had the symptoms aggravated during its employment, eleven seemed to be *none the worse*, and there were but three, in whom the amendment so immediately followed the employment of Quinine, that it "seemed reasonable to suppose the improvement was owing to this treatment." To me, it is likewise a matter of interest to know, whether such cases, (of remittent I mean,) are found to occur in persons newly arriving in Bengal, in July. With regard to the appearance of the tongue as indicative of the necessity of depletion in these fevers, all of which partook so much of the character of gastric fever, I would remark, that there is one appearance of that organ, which has always to me appeared of itself, and without reference to pulse, to morbid heat of belly, to tenderness on pressure, or to the character of the evacuations, to be so invariably attendant upon a condition of the mucous membrane, either already inflamed, or very closely allied to that state, as to call distinctly for the use of the lancet, or of leeches; occur when it may, either at the commencement, or in the progress of the fever. I mean, when the tongue, instead of being flat, and readily protruded, is slowly thrust forward, hard and round, and pointed like a parrot's; its tip and margin brightly red, and its surface clear, with an appearance of thin grey fur, just sufficient to cloud its otherwise perfect healthy tint—a cloud, which is not removable by scraping the tongue, or if removed, leaves it of a bright

brick red colour. This appearance of tongue is seldom found at the commencement of gastric fever, and usually comes on after the period of free purgation, when the colon and small bowels have been thoroughly cleared of feculent matter, and of the first jellied yellow mucous secretions, when the evacuations are almost perfectly fluid, of a deep atro-viridous colour, with a sediment like chopped tea leaves. There is usually nausea and faintness in sitting up, the irritation seeming to be seated high up in the small bowels, and to be caused by the fresh gushes into the duodenum of acrid bile. Whether referrible directly, or indirectly, to sensorial irritation, there is usually, along with these symptoms, more heat of forehead, suffusion of the eyes, depression of mental energy, or agitation of manner, than previously existed, and these head symptoms never afterwards entirely disappear ; until with the return of healthy biliary and mucous secretions, the tongue becomes soft and flaccid, flat and moist, with a substantial fur upon its surface, and its edges swollen and pale ; in short, until the system is mercurialized.

Although the above remarked appearance of the tongue was sufficiently indicative during the epidemic, of a state of things, which invariably yielded to bleeding, I am not at all prepared to dispute the " Fact one" of the French observers at La Charité—" Aucun rapport *constant* ne saurait etre etabli entre l'etat de la langue et celui d'estomac."

No test, or mode of inspection, which I am acquainted with, is sufficient to distinguish cystic from hepatic bile in the night table, nor acrid and irritating bile, from what is perfectly innocent and even deficient in its stimulating properties. The blackest discharges of bile sometimes passed along the bowels, without causing the slightest acceleration of pulse; at others, with much nausea, griping and irritation.

" Les différentes varietés de bile se rencontrent avec tous les etats morbides possibles ; et jusque à present il n'a pas eté possible de les rattacher, soit á des etats speciaux du foie, soit á certains groupes de symptomes."—*Andral.*

With reference to this remark, I know nothing more desirable, than that, where the opportunity exists, (as at any of the great Indian hospitals, where liver affections are so common,) an accurate series of observations should be made, and recorded, of the real or apparent effects of bile, in its different states, upon the human body, from which some general law, or theory of its operation in particular circumstances might be derived. This seems to be the more needed, since, if I greatly mistake not, there are few practical men in the country, who do not generally act upon some such theory, deduced no doubt very correctly and legitimately from their own experience and observation ; but which they have never ventured to reduce to writing, probably owing to the acknow-

ledged difficulty of conveying by words to others, a precisely similar idea of an object, as that created by it upon the observer himself, a difficulty which is still much felt in the study of auscultation, &c.

I am not able to assign any plausible or satisfactory reason for the unusual unhealthiness of the district at this time of the year. There has been nothing, as far as I am aware, peculiar in the state of the weather or different from its ordinary character at this time; unless it may be said, that there have been more frequent squalls from the N. E. than usual, and a greater disturbance than common in the electric equilibrium of the air. In August and September, indeed, annually there have prevailed, along both banks, I believe, of the river (*i. e.* at Garden Reach as well as at Bishop's College and the Botanic Garden), a good deal of fever, remittent or intermittent; but I have not before known an epidemic of this sort prevail so universally as the present, which at Bishop's College attacked in turns all the professors and their families, the students, and the servants; in such sort, that it was at length resolved to break up the establishment entirely for two months: and accordingly three of those, who had suffered most severely, have gone to sea: others upon the river; and the rest to Calcutta, Chinsurah or elsewhere. I do not myself, from all I have observed during the last seven or eight years, agree in attributing to the *banks*, quoad banks, of the river below Calcutta

any share in the unhealthiness, which prevails at times along them. To the crowded vegetation around the garden houses, the imperfectly kept state of the drains, the unsuitable clothing, diet, and habits of the residents, I may safely allot a large share of the reproach now attached to Garden Reach, and may justly contrast it with Bishop's College, upon the opposite bank; the grounds all around which are kept clear and open, the grass lawns closely cut, the canals and sluices in excellent order, and opening freely upon the tide: above all, the regular living, the academic habits, the cheerful mental occupation, and the appropriate costume of the collegians have the greatest possible influence in preserving to Bishop's College its boast of not having lost one inmate by death for seven years.

The following abstract exhibits at one view the general history of 52 cases of fever, treated from the 15th June to the 31st of July, exhibiting the date of application for advice, the age, sex and country of the individual, the type of the fever, the organs chiefly affected, the amount to which each case was bled, and leeched during the treatment, the subsidiary treatment, the number of days under treatment, and the termination of each.

I regret having to correct my report of one case No. 49, in the Abstract, prematurely reported convalescent on the 3rd day of fever. The truth is, that though the boy was an old invalid, the

febrile symptoms were very slight, though well marked as to type, and notwithstanding an evident enlargement of the liver, as the paroxysms were so moderated each day by the application of eight leeches, and the purgative, of calomel, colocynth, and antimonial powder, I hesitated not to administer quinine the morning of the 3rd day; in the evening, however, he was seized with violent pain at the pit of the stomach, retching, and watery purging, with a hot skin, and a quick hard pulse, in short all the symptoms of colonitis.

He was bled to lb. iss. had on 18 leeches; next morning 12 more were applied and a blister afterwards; Calomel and Ipecacuanha were given with Rhubarb and Extract of Gentian every four hours, &c. but he died on the 8th day of fever; no jaundice had occurred, and he was sensible to the last.

On examination, the mucous membrane of the cœcum and ascending colon was found acutely and uniformly inflamed, its coats thickened, and mesocolon vascular. The Ilium at its termination, and throughout was perfectly healthy, so likewise was the jejunum till near its *duodenic* end, where some well marked rings of follicular inflammation, and corresponding vascularity of the mesentery occurred.

The duodenum was brightly inflamed, its mucous membrane smooth, red and glassy where

it passed the pancreas; some patches of redness were scattered along, as far as the pylorus, and there were several blots of inflammation in the stomach. The most remarkable appearance, however, which presented itself, upon laying open the abdomen, was the flat thin margin of the liver enlarged, and extending two inches beyond the ribs of the right side. A distended gall-bladder projected one inch farther, and had even indented a fissure for itself, the size of a shilling, in the edge of the liver. It contained a calculus the size of a bean, but which in no way obstructed the flow of bile through the ducts, although these were thickened, and the internal membrane of the bladder was red and inflamed.

Felt through the thin abdominal parietes, this tumor might readily have been mistaken for an abscess, an occurrence, which I do not find alluded to in Mr. Annesley's great work, although it has not escaped the observation of the indefatigable French Pathologist, who describes four different situations where the gall-bladder "peut depasser le bord tranchant du foie, et former tumeur en differens points de l'abdomen, on elle devient appreciable au palper."

The preparation accompanies this notice of the case.

Date of Illness.	Number.	Of what Country.	Age.	Sex.	Type of Fever.	Organs chiefly Affected.	Bled during the fever, to	Leeches applied during the fever.	Other Remedies chiefly employed.	No. of days ill.	Termination.
June, 15th	1	English, ...	26	Fem.	Continued,	Bowels, ...	℥ 16.	18	Calomel and Colocynth,	6	Cured.
to 20th,	2	Ditto, ...	18	Male,	Ditto, ...	Ditto, ...	lb. iv.	28	Ditto do. Jalap,	5	Ditto.
	3	Ditto, ...	7	Fem.	Ditto, ...	Ditto, ...	...	do.	Ditto ditto,	5	Ditto.
	4	Ditto, ...	39	Male,	Ditto, ...	Head and liver, ...	lb. iii.	40	Ditto ditto,	8	Ditto.
	5	Ditto, ...	32	Ditto,	Ditto, ...	Head, ...	lb. iv.	20	Ditto ditto,	10	Ditto.
	6	Ditto, ...	29	Ditto,	Ditto, ...	Head and liver, ...	lb. iv.	60	Ditto and Nitric Acid,	20	Convalescent.
	7	Ditto, ...	28	Ditto,	Ditto, ...	Head, ...	lb. i. ℥i.	20	Calomel and Colocynth,	4	Cured.
	8	Ditto, ...	32	Ditto,	Intermit....	Bowels, ...	lb. i½.	do.	Ditto and Quinine,	8	Ditto.
20 to 30th	9	Ditto, ...	26	Ditto,	Ditto, ...	Ditto and liver, ...	lb. i.	30	Ditto and Quinine,	6	Ditto.
June,	10	Ditto, ...	20	Ditto,	Continued,	Head and bowels, ...	lb. iv.	28	Ditto and Jalap,	8	Ditto.
	11	Ditto, ...	34	Fem.	Ditto, ...	Stomach & liver,	...	36	Calomel ℈ i. dose,	10	Ditto.
	12	Ditto, ...	40	Ditto,	Ditto, ...	Bowels and liver,	...	12	Pil. Hyd. and Aloes,	8	Ditto.
	13	Ditto, ...	15	Male,	Ditto, ...	Ditto and spleen, ...	...	16	Scammony and Rhu.	6	Ditto.
	14	Ditto, ...	20	Ditto,	Intermit....	Bowels and liver, ...	℥ xv.	do.	Purgatives and Quinine,	6	Ditto.
	15	East Indian,	18	Ditto,	Ditto, ...	Ditto ditto, ...	℥ xx.	do.	Ditto ditto, ...	8	Ditto.
	16	English, ...	40	Ditto,	Ditto, ...	Ditto ditto, ...	...	20	Purgatives and Quinine,	8	Ditto.
	17	East Indian,	31	Fem.	Ditto, ...	Bowels and spleen,	...	12	Steel and Quinine, ...	30	Convalescent.
1st July	18	Ditto, ...	19	Ditto,	Ditto, ...	Ditto ditto, ...	...	do.	Steel and Opium, ...	14	Cured.
to 10th,	19	English, . .	34	Male,	Continued,	Liver and head, ...	lb. v.	18	Calomel Antim. ...	4	Died.
	20	East Indian,	20	Ditto,	Remittent,	Glandular system,	...	do.	Steel and Quinine, ...	8	Cured.
	21	English, ...	23	Fem.	Continued,	Bowels, ...	...	16	Cal. Colocynth. Ol. Ric.	4	Ditto.
	22	Ditto, ...	23	Ditto,	Ditto, ...	Liver, ...	lb. i.	30	Pil. Hyd. & Ol. Rici....	20	Abscess.
	23	Ditto, ...	26	Male,	Erysipelas,	Skin and bowels, ...	℥ xv.	do.	Purgatives, ...	8	Not known.
	24	Ditto, ...	18	Ditto,	Continued,	Bowels and liver,	lb. iv.	60	Calomel and Antimon...	14	Cured.
	25	Ditto, ...	21	Ditto,	Ditto, ...	Bowels, ...	lb. ii.	do.	Calomel and Jalap, ...	3	Ditto.
	26	Ditto, ...	20	Ditto,	Ditto, ...	Head and bowels, ...	lb. ii.	do.	Ditto ditto, ...	2	Not known.

Abstract of 52 Cases of Fever.

Date of Illness.	Number.	Of what Country.	Age.	Sex.	Type of Fever.	Organs chiefly Affected.	Bled during the fever, to	Leeches applied during the fever.	Other Remedies chiefly employed.	No. of days ill.	Termination.
	27	French, ...	26	Male,	Intermit....	Head and bowels,..	lb. ii.	60	Jalap and Quinine, ...	6	Cured.
	28	East Indian,	20	Ditto,	Remittent,	Glandular system,	...	12	Steel Aloes and Quinine,	14	Ditto.
	29	Ditto, ...	16	Ditto,	Ditto, ...	Ditto, ...	...	do.	Ditto ditto, ...	10	Ditto.
	30	Ditto, ...	12	Fem.	Ditto, ...	Ditto, ...	...	do.	Ditto ditto, ...	8	Ditto.
10th July	31	Ditto, ...	20	Ditto,	Ditto, ...	Ditto, ...	...	do.	Ditto ditto, ...	14	Ditto.
to 30th,	32	Ditto, ...	34	Ditto,	Ditto, ...	Bowels, ...	...	do.	Ditto ditto, ...	20	Convalescent.
	33	English, ...	65	Ditto,	Ditto, ...	Liver and bowels,	...	18	Calomel and Quinine,..	12	Cured.
	34	Ditto, ...	17	Ditto,	Ditto, ...	Ditto ditto, ...	...	6	Cal. Colocynth. Quinine,	16	Ditto.
	35	Ditto, ...	16	Male,	Ditto, ...	Ditto and head, ...	lbs. $1\frac{1}{2}$,	46	Ditto ditto, ...	18	Ditto.
	36	Ditto, ...	18	Ditto,	Ditto, ...	Bowels, ...	...	16	Ditto ditto, ...	10	Ditto.
	37	East Indian,	17	Ditto,	Ditto, ...	Ditto, ...	...	30	Ditto ditto, ...	14	Ditto.
	38	Ditto, ...	23	Ditto,	Ditto, ...	Ditto, ...	...	do.	Ditto ditto, ...	10	Ditto.
	39	Ditto, ...	19	Ditto,	Ditto, ...	Gland and bowels,	...	do.	Steel Aloes and Quinine,	14	Ditto.
	40	English, ...	21	Ditto,	Ditto, ...	Ditto and head, ...	...	20	Extr. Galuncha, ...	14	Convalescent.
	41	Ditto, ...	40	Ditto,	Ditto, ...	Head, ...	...	16	Purgatives, ...	3	Cured.
	42	Ditto, ...	17	Fem.	Ditto, ...	Bowels and liver,..	...	do.	Calomel and Aloetic pill	8	Ditto.
	43	Ditto, ...	20	Male,	Intermit....	Ditto ditto, ...	...	do.	Quinine, ...	6	Ditto.
	44	Ditto, ...	32	Ditto,	Continued,	Head and bowels,..	lb. ii.	18	Calomel and Jalap, ...	8	Ditto.
	45	Ditto, ...	34	Ditto,	Remittent,	Ditto ditto, ...	...	36	Ditto and Quinine, ...	6	Convalescent.
	46	Ditto, ...	50	Ditto,	Ditto, ...	Liver and bowels,..	...	12	Quinine & purgatives,..	8	Ditto.
	47	East Indian	19	Ditto,	Ditto, ..	Ditto ditto, ...	...		Ditto ditto, ...	4	Cured.
	48	English, ...	38	Ditto,	Ditto, ...	Head and bowels,..	...	20	Cal. Colocynth, Quinine	4	Convalescent.
	49	Ditto, ...	14	Ditto,	Ditto, ...	Liver and bowels,..	...	16	Ditto ditto, ...	3	Ditto.
	50	East Indian	12	Ditto,	Ditto, ...	Spleen and bowels,	...	do.	Aloes, Steel, Quinine,..	10	Ditto.
	51	Ditto, ...	32	Fem.	Ditto, ...	Bowels and liver, ..	...	8	Calomel, Quinine, ...	7	Ditto.
31st July,	52	English, ...	26	Ditto,	Ditto, ...	Ditto ditto, ...	...	do.	Pil. Hyd. and Quinine,	6	Ditto.

OBSERVATIONS

ON

LAND SCURVY.

By J. HUTCHINSON, Esq.

Presented April 17, 1830.

I REGRET, that I have not time, to throw my thoughts together in a more regular form, in the present letter, but after reading Dr. Burt's short paper on Land Scurvy, among the natives*, it appears to me, that the following case and observations may not be altogether uninteresting to the Society.

The case occurred in one of the seapoys of the 7th Regiment N. I., while that corps was employed in Cachar, in 1825.

He was about 18 years of age, of a full, plump habit of body, very dark complexion, and apparently of indolent habits. He was admitted into Hospital on the 1st of Nov. 1825, in consequence of an apparently rheumatic affection of the muscles forming the calf of the left leg. The

* This letter was written nearly five years ago, and the allusion now made is to Dr. Burt's communication on Land Scurvy, to be found in the 4th volume of the Society's Transactions.

part was swoln, hard, and glossy, and felt as if the whole muscles of the part were agglutinated together, by an effusion of coagulable lymph. It was very painful, especially on pressure, and prevented free extension of the leg. The joint of the opposite knee was likewise in some degree, swelled and painful; the pulse was very frequent, but weak, the skin hot and dry, and if I recollect rightly, the tongue was of a dead white, and bloodless colour. He was ordered five grains of calomel with a few grains of antimonial powder, at bedtime, to be followed up by a solution of salts with antimonial wine, in the morning.

Next day, I was surprised to observe the face apparently more full and puffy than usual, particularly on one side; on inquiry, I found that his gums had been spongy, and his teeth loose, for some time previous to his admission into Hospital. His gums bled profusely on using the slightest liberty with them, and there was a discharge of ill-conditioned matter, from between hem and the teeth.

He had used no mercury previous to admission, and none was given to him, after the first dose.

This was the first case of the sort I had witnessed. In the commencement, it was treated as one of acute rheumatism, and afterwards when it assumed a more chronic form, guaiac, bark, quinine, &c. were tried, but without the slightest benefit.

Although combined with opium, they generally affected the bowels, which were inclined to be irritable.

Oil of turpentine was next had recourse to, and under it, the state of the bowels considerably improved; the stools, though still more frequent than natural, becoming costive, and not unlike rolls of chalky sulphur.

The symptoms were now suspected to be of a scorbutic nature, and lime-juice, and a solution of nitrate of potass in vinegar were administered to him; and as he had hitherto lived on a low vegetable diet, fresh animal food and milk were enjoined, and made use of, but without any advantage. The stomach became weaker, and rejected its contents, although he ate but sparingly.

Latterly, the calf of the left leg was less swelled, but the knee of that side had been involved in the disease: the opposite one remained as before, but both were now in some degree contracted, and the ends of the bones forming them, appeared to have become enlarged.

He remained in this state (very little reduced in flesh) till the 20th of January. In the morning's visit of that day, I observed that his respiration was much hurried, the expression of the eye and countenance was wild and anxious, and the pulse thready and running. These symptoms

continued to increase till 11 o'clock A. M. when he died.

With great difficulty, I obtained permission of his relations to examine the body, and in consequence of their anxiety and importunities to remove it, I was obliged to proceed to the examination, at 1 o'clock P. M.

In laying open the abdomen, the integuments over the muscles and the omentum were found loaded with quantities of yellow fat. The liver was much enlarged, and of a dark colour. It appeared almost as if it had been macerated for several days, its substance could be readily broken down between the finger and thumb, and the investing membrane from the peritoneum was in some places whitish, and could be readily stripped off from its parenchyma. It had likewise formed a few adhesions to the diaphragm, and the parietes of the abdomen. The gall-bladder contained about three ounces of an extremely dark, viscid and ropy bile.

On opening the thorax, the pericardium was found to contain about two ounces of a clear liquid, which was carefully removed with a sponge, into a glass measure, and in a short time in removing it from the glass, it was found to have acquired the consistence of jelly. The heart was of a pale colour; nothing remarkable was observed about its left ventricle; but on cutting into the auricle,

it was found filled with a substance, something between the consistence of a polypus, and the gelatinous buff of inflammatory blood. The right ventricle was pale and flabby, and unusually thin in its parietes; it was filled with a substance similar to that found in the left auricle, which was so tenacious, that it could with difficulty be torn from among the columneæ carneæ. The right auricle was filled with a similar substance, which perfectly retained its shape after being removed.

Generally the anatomical structure of the heart was uncommonly distinct, particularly the remains of the foramen ovale.

The left lung was apparently healthy; the right however was a florid red, and adhered throughout the whole of its contiguity, to the walls of the thorax, and likewise to the diaphragm, insomuch that it could with difficulty be separated, even by force. The blood, which was effused, in removing the heart, coagulated in the thorax, which I am unable to account for, unless it arose, from the short period, which intervened between death, and the examination of the body; and yet I have not been able to find any conformation of this opinion, in my notes of Mr. Hewson's work on the blood.

I regret to say, that the same cause, which hurried on the examination of the body; viz. the

impatience and importunities of the relations, prevented me from examining either the parts affected, the intestines, or the contents of the cranium.

In Cachar I have seen several other cases of a similar nature; but in which the symptoms were much less acutely marked.

In some, I have seen the lower extremities affected, considerable swellings forming about the knee, or under it, not very unlike venereal nodes, though of a much larger size, and of a more diffused, fleshy, and puffy feel; while in others, an upper extremity has been affected, a similar swelling forming about the elbow joint.

In either case, if the mouth be examined, the gums will be found tumid and separating from the teeth, and as the disease advances, a fœtid matter is discharged from between them, the teeth become clogged with sordes, the gums bleed on the slightest occasion, and finally their interstitial divisions shoot up into large fleshy prominences, and the teeth drop out as if forcibly ejected from their sockets.

While these symptoms are going forward, there is generally a degree of low fever, the tongue is of a dead white and bloodless hue, and the countenance has much of the lurid appearance, which attends affections of the spleen; and if I mistake

not, this state is intimately connected with that singular and peculiar disease of the natives "the burning of the feet."

Dr. Burt thinks, this disease principally arises from poorness of living, and moisture. It probably does so, and yet I have seen some mild cases of it at Gyah, where the air and soil are remarkably dry.

Dr. Burt farther remarks, that the sluggish and indolent are particularly liable to attacks of this disease; but it may fairly be a question, if they are not so, to every other disease of debility.

The last case, I had occasion to treat, I was inclined to attribute, in some degree, to an habitual use of opium; and it is probable that this, or any other cause, which destroys nervous power, producing sluggishness and indolence, and thus obstructing the free action of the Chylopoietic viscera, would produce a similar effect.

In the treatment of this singular, and (when ill managed,) very fatal disease, instead of placing a great deal of confidence, in the bitter tonics of Dr. Burt, I should be more inclined to recommend the bowels to be kept in a proper state, by a few drachms of Mr. Twining's spleen mixture, with the use of the mineral acids during the day. A moderate use of bazar spirits has certainly appeared to me to be beneficial, and I see no reason, why a

trial might not be made of the T,haree or palm wine, where it can be conveniently procured.

The T,haree generally agrees very well with the natives, and although lime juice, oranges, and the acetic solution of nitre, may answer very well, with the *dura ilia* of Europeans; yet I suspect, they will not be found to improve the state of a Native's bowels in this disease: and if a diarrhœa be once fairly established, it will be no difficult matter to prognosticate the result of the case.

While these remedies are being employed for the improvement of the general health, we ought not to forget, that comfortable lodging and clothing, free ventilation, and a generous diet will be our best auxiliaries; nor ought we to omit the use of mineral and vegetable astringent gargles, and other topical applications that may be indicated.

While on the subject of local applications, and connected as I believe the two diseases to be, it may not be foreign to the subject to remark, that in cases of burning of the feet, I have seen some advantage derived from the native unguent recommended by Dr. Playfair, and that I have never seen the slightest benefit derived from any other application whatsoever.

P. S.—In laying these observations before my professional brethren, I wish it to be distinctly understood that the mode of treatment laid down,

is recommended more as that likely to succeed than as having actually been attended with unusual success. In any disease, which is not of frequent occurrence, it will generally be some time, before the best mode of treatment can be laid down with accuracy. The present one, if I am not mistaken, will not be found particularly tractable, especially where the patient remains exposed to the influence of its exciting causes, and perhaps in most cases a timely change to a more favorable climate* would be more beneficial, than any course of medicine, we could prescribe.

* From Mr. MacNab's paper on the same subject not yet published, it will appear, that medical treatment is almost inefficacious in combating this disease; so that change of air holds out the best chance of a speedy cure. I may add, that I perfectly concur in the justness of this remark, where the case has assumed any thing, beyond the mildest form.

CASE

OF

FRACTURE OF THE TROCHANTER.

By J. CLARKE, Esq.

Presented July 6, 1833.

I beg leave to send you a preparation of Fracture of the Thigh Bone, in which the Trochanter Major was shattered and crushed, with fissures extending into the shaft of the femur.

The man, from whom this preparation was taken, was a sergeant in the garrison of Chunar, a muscular man aged 32 years, addicted to drinking spirituous liquors.

On the 5th May, during a severe hail-storm, whilst running along a sloping pavement, he was thrown down with violence upon the pavement, and fell with the whole weight of his body on the left hip and thigh. He was stunned by the fall, and felt unable to raise himself, but upon being assisted he walked a few paces to get into a house, supported by a man's arm. When seen a few hours after the accident took place, there was considerable swelling with slight contusion over the Tro-

chanter Major, and the parts about the hip joint were tense and painful. He lay in bed with his limb fully extended, and there were no symptoms, which indicated at once either dislocation or fracture of the femur, no shortening or deformity of the limb; but on raising the foot and rotating it inwards, he shouted in agony, the pain shooting from about the Trochanter Major along the bone to the knee, in which joint, the pain was most excruciating. Suspecting from the intense pain on rotating the limb, that fracture of the bone existed interiorly to the capsular ligament, both limbs were placed in accurate apposition, but not the slightest deformity, or shortening by measurement could be detected. The Trochanter described a naturally large circle on rotation, and no crepitus could be felt—the foot fell slightly outward, but not more so than would take place in a limb, in which the muscles had been much bruised. He was actively treated by leeches and fomentations to the part, and the limb kept extended and supported, by means of small pillows placed under the outside of the knee and ankle. The inflammation and swelling subsided; but the pain on rotation was so *excessively severe*, and referred as before principally to the knee, and extending along the bone, that I felt convinced the bone had been injured, although the exact nature of the injury was ambiguous, (pressure on the hip, or on the trochanter, did not give much pain,) and I resolved upon putting on a splint along the outside of the thigh, from the

Crista of the Ilium to the knee, thinking it best to be on the safe side, if a fracture really did exist.

I requested the advice of Mr. Lindsay, garrison Assistant Surgeon: the limb was again examined by both of us in the most careful manner; but we could detect no fracture.

As the man was much addicted to drinking, and no dependance could be placed on his abstaining from liquor, he was sent into hospital on the 10th, under Mr. Lindsay's care, and as the limb maintained its natural position, splints were not applied. On the 12th, delirium having all the characters of Delirium Tremens came on, for which he was treated in the usual manner: he died on the morning of the 13th.

The body was examined by Mr. Lindsay and myself five hours after death. I shall confine my observations to the appearances about the hip joint. On opening the articular cavity, reddish colored Synovia escaped; the round ligament was healthy, but more vascular than usual; the neck of the bone was uninjured; the bottom of the acetabulum was of a deep red, shewing that the head of the bone must have been forced with great violence against the acetabulum; hence the pain felt in the knee, as is usual in inflammations of the hip joint. Extravasation was discovered internal to the Capsular Ligament, and around the Trochanter Major, and on clearing away the muscles, the

Trochanter was found crushed and shattered, several pieces entirely detached, and fissures extending deeply into the shaft of the bone. The cells were filled with coagulated blood, and no attempt at re-union, or reparation had taken place. The symptoms are well explained by the dissection: the bone was entire as a support; therefore no deformity took place; it was shattered where many muscles arose; the resting point of the bone in the cavity was inflamed, accounting for the pain on motion, and the impossibility of bearing on the limb.

I believe, such a case as I have detailed is very rarely met with, and if the preparation is deemed worthy a place in the Society's Museum, I am happy to have had it in my power to make the contribution.

N. B. On examining the preparation after maceration and drying, I find that a fracture of the bone through the Trochanter really exists, but without displacement of the bone.

CASES

OF

LITHOTOMY ON ASIATICS.

By R. N. BURNARD, Esq.

Presented May 4, 1833.

I HAVE the pleasure to present for the Medical and Physical Society, a continuation of specimens of Urinary Calculi, amounting in number to fifteen, and numbered according to my list from 19 to 33 inclusive. At the same time, will I hope be presented by Mr. Hutchinson, to whom it has been already sent, a specimen of diseased bladder*, to which I shall have occasion to advert in the remarks annexed to this list.

* The preparation alluded to and Calculi were duly received, and have been deposited in the Museum of the Society.

No.	Name.	Age.	Residence.	Date.	Result.	Weight.	Composition.	Remarks.
19	Gooljar Aheer, ..	10 years,	Buragaon Kold, 7 kos W. of Bunarus,	20th Dec. 1831.	Cured 8th Jan. 1832.	13 drachms,	Triple phosphate.	
20	Nukched Rajpoot,	5½ yrs.	Bunarus, ...	13 Mar.-32	Cured 3rd June 1832.	2 drs. 5 grs.	Triple phosphate with lithic acid.	
21	Sooklal Koeree,	10 yrs.	Buddoree, 13 kos W. of Bunarus.	5th June,	Cured 21st June	3 drs. 16 grs.	Lithate of Ammonia with phosphate & probably a little oxalate of lime.	
22	Bisseshur Kulwar	11 yrs.	Ramnugur, 1 kos S. of Bunarus	27th do.	Cured 25th July	2 drs. 9 grs.	Oxalate of li me with lithic acid, and perhaps a little Ammonia.	
23	Baluk Chumar,..	8 years,	Beitabhur, 5 kos S. W. of Bunarus,	5th July.	Cured 6th Aug.	2 calculi, 6 drs. 40 grs.	Triple phosphate with lithic acid.	
24	Gopal Rajpoot,..	11 yrs.	Munda, 8 kos N. of Bunarus, ..	9th Aug.	Cured 2nd Sep.	2 drs. 7 grs.	Phosphate of lime.	
25	Ramruttun Sonar,	10 yrs.	Bunarus, ...	24th Sept.	Cured 21st Oct.	4 drs. 28 grs.	Triple phosphate with lithic acid.	
26	Hurlal Aheer, ..	27 yrs.	Chuenpoor, 30 kos S. E. of Bunarus,	26th do.	Died 27th Sept.	2 calculi, 7 drs. 45 grs.	Brown part lithic acid, white, triple phosphate with lithic acid.	Vide Postea.
27	Ramlilee Jolàhur,	11 yrs.	Sasseram, ...	10th Oct.	Cured 19th Dec.	13 drs. 25 grs.	Triple phosphate with oxalate of lime and lithic acid.	
28	Kuliyan Khutree,	10½ yrs.	Bunarus, ...	19th Dec.	Cured 4th Jan. 1833.	32 grs.	Oxalate of lime with lithic acid, & perhaps phosphate,	This boy has been operated on before, viz. on the 25th Aug. 1830, vide my former list No. 6, the calculus of similar composition.
29	Moteelal Kuttick,	50 yrs.	Sueedpoor, ...	26th do.	Cured 25th Jan.	2 calculi, 4 oz. 4 drs. 50 grs.	Triple phosphate with slight admixture of lithic acid.	In this case lithot rity was attempted, but the stones could not be embraced from their size.
30	Gungadiyal,	5 years	Butaor, 8 kos E. of Bunarus, ..	22nd Jan. 1833.	Cured 8th Feb.	3 drs. 50 grs.	Triple phosphate with lithic acid.	
31	Dwarka Das, ..	35 yrs.	Bunarus, ...	25th do.	Cured 12th do.	4 drs. 10 grs.	Oxalate of lime with perhaps phosphate and lithic acid.	
32	Ramkissen Brah:	60 yrs.	Ditto, ...	30th do.	Cured 24th do.	3 calculi 4 drs. 56 grs.	Triple phosphate with lithic acid.	
33	Juggun Aheer,	48 yrs.	Burugaon, 7 kos N. of Bunarus,	13th Feb.	Cured 4th Mar.	8 drs. 45 grs.	Triple phosphate with perhaps a little oxalate and lithic acid.	This man's prostate was much enlarged.

No. 26.—Hurlal had laboured under symptoms of stone for about seven years. On his applying for relief, a calculus was easily discovered, apparently of large but irregular size, and as I had recently received the French lithontriptic instruments, I thought it as fair a case for the trial of them, as could be expected, where the countenance was expressive of ill health, and there was constant pain in the loins, with occasional accessions of fever. On the 28th August I made the attempt to seize and break down the stone. No urine having been passed for a considerable time, I did not consider it necessary to inject any fluid into the bladder. I found no difficulty in passing the lithontripteur, but could not, till after many attempts, succeed in getting hold of the stone, and when I did, it was but a small hold, and the stone soon escaped from the borer. The perforation made, at this time, is in one end of the stone, and the marks of the claws of the litholabe are visible on its sides. The instruments were now withdrawn, and a large catheter passed to assist the discharge of whatever fragments might have been broken off; to my surprise scarcely any urine was discharged, and I began to think, that I had failed in getting a sufficient hold of the stone, from there being too little fluid in the bladder. After waiting a day or two, I began to inject the bladder with tepid water, but found great resistance and pain produced by this, and in a few days a severe nephritic attack came on, which necessarily compelled

a relinquishment of proceedings. When this attack apparently had subsided a little, I made a cautious attempt, on the 25th September, again to seize the stone, but could not succeed. The poor fellow was now much reduced by the continued irritation of the bladder and kidnies, and being very urgent to have something done, though with every appearance unfavourable, I performed the common lateral operation on the 26th September. Immediately on cutting into the grove of the staff, the resistance of a stone was felt, and two were, with some little difficulty extracted, the forceps not entering the cavity of the bladder. Examination by the finger shewed a considerable irregular cavity, in which these had been contained, with apparently firm fleshy sides, and on its fore and upper part, a small aperture barely admitting the finger to pass into the real cavity of the bladder. A sound introduced by the urethra passed through this passage of communication into the real bladder. The patient died the next day, and on examination of his body, both kidnies were found occupied by abscess, and their cortical substance nearly absorbed. The bladder, of which a preparation is presented to the Society, is considerably thickened, and the cavity, in which the calculi were contained, is distinctly marked, as well as the outline of division between it and the cavity of the bladder. This cavity appears to be formed partly in the substance of the prostrate gland, and partly in the neck of the bladder below, and in front of the vesi-

culæ seminales, which are left attached to the preparation. A reed is passed through the urethra, where it was divided, just anterior to the point of incision in the operation into the true bladder; its course satisfactorily explains, why the litholabe could not be made to embrace the stone, its claws being expanded in the bladder beyond the cyst, in which the stone was contained, and the only time, when it did seize one extremity, it was effected by withdrawing the instrument to the neck of the bladder, and opening it, in a direction nearly perpendicular to the body of the patient, as he lay on his bed. The smaller calculus appeared to be contained in a separate cavity of its own, behind the larger one.

The Medical Board having furnished me with a set of lithontriptic instruments, it may be expected, that I should make some observations on their use. Unfortunately the cases, which have occurred to me since their receipt, in which their introduction was practicable, have only afforded a series of disappointments. These are, however, not without instruction, the causes of failure having, in each instance, been satisfactorily explained. I must premise, that the instruments sent to me are only adapted to adults, where the urethra is of full capacity. The only cases, I have met with, in which their introduction was practicable were No. 26, (the case just given,) Nos. 29 and 33, in each of which, the calculi were too large to be

embraced by the claws of the litholabe, and No. 32, in which the enlargement of the prostate gland prevented any straight instrument from touching the stones. No. 31 might have proved a more favourable case, but the patient objected to any operation but cutting. I am far however from being discouraged,and trust yet to meet with cases, in which these instruments may be as successful in my hands, as they have been in those of others.

The first and most frequent obstacle is the size of the stone; it is obvious, that an instrument the greatest expansion of whose claws is not an inch and three quarters cannot be made to embrace a stone of the magnitude of several of those, which I have presented to the Society; unless some improvement be effected in the adaptation of an instrument to these cases; that lithotomy must still be resorted to for them, whilst unhappily they are precisely the cases, in which lithotomy is most dangerous. A good deal of difficulty will, I apprehend, be found in getting hold of a calculus within the bladder, whose diameter, though less than, approaches to the capacity of the litholabe; the seizure of these kind of calculi will, in my opinion, be the evidence of dexterity in the use of the instrument. Amongst Europeans, the most frequent cause of large calculi has been the dread of submitting to operation, and their frequency is likely to be considerably diminished, now that it

is known, that the disease is capable of relief in its earlier stages, without having recourse to so severe a measure. Amongst natives, ignorance of where to apply for relief, joined to the apathy, with which they often endure suffering, will continue to afford specimens of large calculi, till a more general diffusion of knowledge, and change of character, which it is hopeless to expect in our generation, take place.

The lodgment of the calculus in a cyst properly so termed, by which I understand its passing between some of the fibres of the bladder itself, is, I suspect, of very rare occurrence; it would however prevent the application of lithontrity. I have met with one other instance of a calculus lodged, in nearly the same situation as in No. 26, and am satisfied, that lithontrity would have been impracticable in that case. These are not, properly speaking, cases of encysted calculi; but it is most probable, that the stone has become impacted in the prostatic portion of the urethra, (its irregular shape still allowing a passage for the urine,) where it has grown, and by its pressure produced the changes we find in the parts.

Enlargement of the prostate gland is an obstacle to lithontrity. Persons with this enlargement are peculiarly liable to stone, and the stone or stones are generally lodged behind the enlarged prostate, beneath the level of the vesical entrance

of the urethra; they in this situation not unfrequently escape the touch even of a curved sound, and a straight one can hardly be made to touch them at all. Position may sometimes remedy this, but the straight instrument introduced in a case of enlarged prostate must be directed so much towards the anterior part of the bladder, that grasping the stone will, I should think, be generally impracticable.

With the small experience I have had of lithontrity, I am unwilling to mention any other difficulties than those, I have actually encountered, and though I have unhappily no proud evidence of success in this operation to lay before the Society, I should have deemed it unworthy to withhold the little I have to offer from a meeting, where it is sure to be received with candour and consideration. Every man having the interests of humanity, and the improvement of his profession at heart, must rejoice at whatever tends to lessen human suffering, and to diminish the frequency of having recourse to what John Hunter said, he never took up without a feeling of humiliation, "the operating knife." That lithontrity has in many instances, proved an efficient substitute for a severe and dangerous operation is abundantly established, and there are good grounds for hoping, that its application may be extended, and facilitated by improvements in the instruments for that purpose. Distant as we are, in this country, from the sources

of improvement, both professional and mechanical, we must look for these to Europe; we have however the gratifying assurance, that the fostering care of our Medical Board will not leave us without a participation in the benefits of the discoveries of our brethren in the western hemisphere.

FURTHER NOTES

ON

THE CURE OF HYDROCELE,

BY SOLUTION OF TINCTURE OF IODINE.

By J. R. MARTIN, Esq.

Presented January 3, 1835.

On the present occasion, I shall trouble the Society with but few observations, in addition to those already made on the injection with solution of Tincture of Iodine in Hydrocele; and the first circumstance deserving of remark is the great prevalence of the disease amongst the natives, as evinced by the number operated on at the Native Hospital, during the last three years: of these, some were amongst the largest on record, and others contained a fluid resembling an admixture of pus and blood, or that of the "Hæmorrhagic Pleurisy" of Mons. Laennec. All have been successful hitherto, as far as we can ascertain, even those, who underwent labour and fatigue from the moment of operation, have done well, so that the safety and expedition of the curative means would seem to be established. On this head I would beg to call attention to the twelve cases of double Hydrocele, treated *on both sides at once*, and which

recovered with quite as much ease and expedition, as the single cases.

The first case here quoted has been furnished me through the kindness of Dr. Graham, of this city. It is interesting so far, as it shews, that a much larger quantity than I have tried may be injected with safety; but if there be any superiority in the Iodine injection, as used by me, it consists *in the smallness of the quantity used, and its being retained;* for I believe with Sir Charles Bell, that in the hands of the best surgeons, infiltration may and does "very frequently happen" with the Port Wine solution, owing, as I conceive, to the action of the cremaster muscle, excited by pain, drawing the cavity of the sac off the end of the canula. Mr. Brodie* considers, that with the wine solution, danger is incurred by the cavity of the tunica vaginalis being distended by the injection "quite as much as it was distended before," and that infiltration happens "in this or in some other way." Sir Astley Cooper† says, "The operation of injection is not entirely devoid of danger, and it results from throwing the injection into the cellular membrane of the scrotum. I have seen many cases, in which extensive sloughs were produced." There is another point, and an important one, in which the superior stimulating effects of the Iodine injection would appear to give it a preference to the wine solution, *its greater certainty of action.*

* Clinical Lectures on Hydrocele.

† Observations on the Structure and Diseases of the Testis.

The Port Wine injection very frequently fails, as every surgeon must have seen. On this subject I will again quote Sir A. Cooper, who with his accustomed candour declares, that "this ope-"ration sometimes fails in producing sufficient in-"flammation to effect a cure. I once asked Sir "James Earle, if he did not sometimes fail; and he "said 'scarcely ever.' This is quite contrary to my "experience; for I sometimes fail, and should very "often do so, but for great care in the after-treat-"ment, upon which, I think, much depends. I "sometimes, when the water is reproduced, a few "days after the operation, tap it, to remove the "serum, and produce by this operation a larger "share of inflammation." From such dangers, failures, and inconveniences the present operation would seem entirely free, and I think I am warranted in drawing the following additional corollaries:

1st. The operation with Tincture of Iodine solution is greatly less liable to failure, than that with Port Wine solution.

2nd. No serum has ever been "reproduced a few days after the operation," with the Iodine solution.

3rd. Care in the after-treatment, upon which so "much depends" in the old operation, would seem here to be little requisite.

Dr. Graham concurs with me in opinion as to the effects of the Iodine injection, and has gone

further, than I ventured to do, in speaking of its advantages. I have greatly to thank him for the case of Mr. M. which is as follows:

"I have much pleasure in bearing testimony to the improvement introduced by you in operating for Hydrocele; it combines safety with certainty, and will, I hope, ere long, be universally adopted. In the case of Mr. M——, on whom I operated in June last, the Port Wine injection had been previously tried unsuccessfully, and I gladly availed myself of your recommendation of the Iodine solution. I injected two ounces, and allowed it to remain for three minutes, rubbing the scrotum during its retention: pain of the back was severe for a time. The fluid was withdrawn, with the exception of two drachms, which I allowed to remain. No violent inflammatory action ensued, and upon the third day, this gentleman resumed his business, and has continued perfectly well ever since. I have used it with the same success in several cases of native patients. The profession in my opinion ought to be much indebted to you, for presenting so mild and sure a cure to their consideration.

"*Nov. 4th*, 1834. "Yours, &c.

"W. GRAHAM."

"P. S. I may add, that the reason for deviating from your plan of merely throwing in two drachms of the solution, and allowing it to remain, was the patient's great anxiety to get rid of the complaint.

In the other cases, I pursued rigidly the plan advanced by you, and so confident am I of its superiority over all, that I shall never pursue any other."

The next case was that of a gentleman, whom Mr. Bramley brought me in July last, and I am indebted to him for the following observations on it:

"In reply to your note, I have much pleasure in informing you, that my patient, on whom you operated for single Hydrocele, in the presence of Mr. Mercer and myself, is perfectly cured.

"I shall premise the few observations I have to make on this case, by stating, that though Mr. R. might be considered a robust and healthy man, that he nevertheless could not be said to be the best subject, for this, or indeed for any surgical operation, in consequence of his being naturally predisposed to a peculiar irritability of the nervous temperament. In proof of this, it is sufficient to mention, that he has more than once been known to faint while having his hair cut.

"In regard to the operation you may remember, that after the fluid (about 8 oz. in quantity) was evacuated, the patient suddenly fainted, and that when re-action was in some measure established, the tunica vaginalis was injected with two drachms of the Iodine solution; that scarcely had the injec-

tion been introduced, than it seemed to produce such excruciating pain in the testicle, passing along the spermatic chord, to the loins, as completely to throw the nervous system off its balance, as was evinced by the patient suddenly falling into a state of false epilepsy, from which he did not recover for at least half an hour.

"Whether these unusually severe symptoms were the result of excess of pain, produced by the injection, or whether the peculiar idiosyncrasy of the patient, might be deemed sufficient to account for them, is a question I do not pretend to determine; but it is useful to know, that from whatever cause they may have arisen, their occurrence would not seem to militate against the use of the Iodine solution for the cure of Hydrocele. This, I think, is sufficiently evident from the fact, that the subsequent inflammatory process was not more than adequate to effect a radical cure, since the after-treatment consisted merely in pursuing a mild antiphlogistic course, and keeping the patient in the horizontal posture, without the necessity of employing either local or general blood-letting. On the eighth day he was permitted to walk about; and from that time, he gradually recovered.

"It is worthy of mention, that the testicle on the same side as the Hydrocele had been considerably enlarged for some years, in consequence of an accident; and that since the operation has been

performed, its size has become much reduced, and he now feels no inconvenience from it whatever.

"Your's, &c.

"M. J. BRAMLEY."

"*Calcutta, Dec.* 21*st*, 1834."

The peculiar irritability noticed by Mr. Bramley, in this last patient, appeared to me at the time to arise from the free use of tobacco, (cigars ;) of the injurious effects of which on the digestive organs, but especially on the nervous system, I have seen many severe instances amongst the young officers of our army.

I think, it was this that caused the pain, in all cases very severe, from the Iodine injection, to be felt with such peculiar violence. However, no untoward symptoms followed, and I have nothing to add to Mr. Bramley's excellent description of the case.

The largest single Hydrocele, I have ever seen, was that of Shaik Edue. The patient was fifty years of age, and the complaint, which was on the right side, was of ten years standing.

Mr. O'Brien, who has treated most of the cases in this list, performed the operation with four drachms of the solution. The tumour reached to near the knees, and contained the enormous quantity of *ninety-two ounces* of greenish offensive serum. Excessive distension had caused slight

inflammation of the scrotum, the pain, from both which, drove him to the Hospital for relief. He was quite well in eight days, when he went home.

The only caution that appears to me necessary, in the performance of the injection with Iodine, is to see that the syringe is in good order, that the piston fits well; otherwise air will be injected, and the operator deceived as to the quantity of fluid used.

TO RECAPITULATE.

1*st*. The operation with solution of Tincture of Iodine would seem free from the danger of infiltration.

2*nd*. It is more certain in its effects, than any former injection.

3*rd*. The cure is effected in a shorter time.

4*th*. It is much easier of performance.

5*th*. No serum has on any occasion been "reproduced, a few days after the operation," demanding a second tapping.

6*th*. The care in after-treatment, on which "so much depends," with the wine solution, would not seem here to be requisite.

Native Hospital, Calcutta, Jan. 1*st*, 1835.

List of seventy cases of Hydrocele treated with Solution of Tincture of Iodine, in the Native Hospital, Calcutta.

Date.	Names.	Age.	Trade or Occupation.	Side or sides operated on.	Quantity of fluid drawn off.	Quantity of solution injected.	No. of days in Hospital.	Treatment.	Remarks.
					oz.				
May 9th,...	Tooraj,.....					3 ij.		A saline purge and lotion. ...	Not seen after the operation.
10th,	Lallmahmed, ...					3 iiss.		No treatment. ...	Ditto ditto.
22nd,	J. D'Souza,.....					3 ij.	11	Saline purgative and lotion. ...	Discharged cured.
28th,	Golaub Khan, ...	30		Left, ...		3 ij.		No treatment. ...	Seen for the first time after the operation on the 6th July. *Well.*
29th,	Jeewun Khan, ...	40		Double,	20	3 ij.	6	Saline purgative and lotion. ...	Doing well when discharged.
31st,	Abdool, ...	55		Right, ...	9	3 ij.		Ditto ditto. ...	Came to have the left side treated on the 27th June, when the right was quite well.
June 1st, ...	Haro, ...	40		Left, ...	40	3 iv.		Ditto ditto. ...	Not seen after the operation.
6th,	Munnoo, ...	35		Left, ...	20	3 ij.		No treatment. ...	Ditto ditto.
18th,	Meahjaun, ...	40		Left, ...	16	3 ij.		Saline purgative and lotion. ...	Seen 2nd July, almost well.
25th,	Kubbeer Doss, ...	30		Double,	12 left, 8 rgt.	3ij.ech.	7	Purgatives, diaphoretics, and lotion. ..	Feverish for 4 days after the operation, not seen since—doing well.
27th,	Abdool, ...	55		Left, ...				No treatment. ...	Not seen after the operation.
July 2nd,...	Sahibdeen, ...	60	Tailor, ...	Double,	8 left, 18 rgt.	3 j. 3 ij.		Saline purgative and lotion. ...	Seen August 28th—cured.
5th,	Talub, ...	25	Peon, ...	Double,	10 left, 48 rgt.	3 ij. 3 iij.	12	Ditto ditto.	Was attacked with dysentery while in Hospital—discharged cured on the 17th.

Date.	Names.	Age.	Trade or Occupation.	Side or sides operated on.	Quantity of fluid drawn off.	Quantity of solution injected.	No. of days in Hospital.	Treatment.	Remarks.
					oz.				
July 6th,	Khasie Moodie, ...	27	Moonshie, ..	Left, ...	20	3 ij.		Saline purgative and lotion. ...	Not seen after the 13th, when doing well.
8th,	J. H. D'Souza, ...	31	Servant, ...	Right, ...		3 iij.	7	Ditto ditto. ...	Discharged—doing well.
... ...	Mr. R——m, ...		Pilot service,						Reported cured.
16th,	Allum, ...	40	Coachman, ...	Left, ...	16	3 ij.		Purgative and lotion. ...	Drew off 16 oz. of bloody serum —seen on the 1st August—doing well.
23rd,	Phyzoo, ...	25	Daury, ..	Right, ...	24	3 iij.	3	Ditto ditto. ...	Not seen after the 26th—doing well.
24th,	Kuddubux, ...	40	Siklyghar, ...	Left, ...	12	3 iss.		Ditto ditto. ...	Seen August 6th—cured.
30th,	Sufferally Khan,	26	Kallassie, ...	Right, ...	16	3 ij.	4	Ditto ditto. ...	Doing well when discharged from Hospital.
Aug. 6th,	Coosiall, ...	60	Tailor, ...	Left, ...	48	3 iv.		Ditto ditto. ...	Not seen after the 13th—doing well.
.....	Pethram, ...	30	Carpenter, ...	Right, ...	24	3 iij.		Ditto ditto. ...	Ditto ditto 8th—doing well.
7th,	Gunness, ...	30	Sirdar bearer,	Left, ...	12	3 iss.		Ditto ditto. ...	Ditto ditto 10th—doing well.
.....	Neeamuth, ...	25	Syce, ...	Left, ..	16	3 ij.		No treatment. ...	Not seen after the operation.
13th,	Shaik Ramjhue, ...	25	Bheestie, ...	Double,	16 left, 14 rgt.	3ij.ech.	6	Purgative and lotion. ...	Not seen after the 26th—doing well.
20th,	Uchupram, ...	30	Sirdar bearer,	Left, ...	8	3 iss.		Ditto ditto. ...	Ditto ditto 26th.
22nd,	Moolamdee, ...	35	Khitmutghar,	Right, ...	6	3 iss.	5	Ditto ditto. ...	Drew off 6oz. of thick serum, seen last on the 26th—doing well.
24th,	Shumshairally, ...	25	Moonshie, ...	Left, ...	12	3 ij.		Ditto ditto. ...	Not seen after the 31st—doing well.
25th,	Jahaun Bux, ...	36	Tailor, ...	Left, ...	4	3 i.		Ditto ditto. ...	Ditto ditto 31st—doing well.

Sept. 1st,...	Sagoor, ...	30	Labourer, ...	Left, ...	40	3 iv.		No treatment. ...	Scrotum affected with Elephantiasis.
... ...	Radaram, ...	35	Sirdar bearer,	Left, ...	12	3 ij.	6	Purgative and lotion. ...	Not seen after the 6th Sept.—doing well.
5th,	Ramjhaun Beg, ...	40	Khitmutghar,	Left,	32	3 iij.		Ditto ditto. ...	Ditto ditto 9th—doing well.
10th,	Assmuthoolah, ...	30	Syce, ...	Double,	16 left, 10 rgt.	3ij.ech.	5	Ditto ditto. ...	Ditto ditto 15th—doing well.
12th,	Bheekun, ...	30	Syce, ...	Right, ...	20	3 iij.	4	Ditto ditto. ...	Ditto ditto 23rd—nearly well.
13th,	Saboo, ...	25	Khitmutghar,	Right, ...	12	3 ij.	4	Ditto ditto. ...	Seen Oct. 4th—cured.
15th,	Abraham, ...	45	Cook, ...	Right, ...	16	3 ij.		Ditto ditto. ...	15th October—well.
22nd,	Gunness,.....	30	Bearer, ...	Left, ...	12	3 ij.	6	Ditto ditto. ...	Not seen after the 27th inst.—doing well.
.....	Baunnoo, ...	40	Khitmutghar,	Left, ...	14	3 ij.	6	Ditto ditto. ...	Seen Oct. 28th—cured.
24th,	Alphoo, ...	28	Bheestie, ...	Right, ...	16	3 ij.	5	Ditto ditto. ...	Not seen after he left the Hospital—doing well.
26th,	Bhowannie Deen,	22	Police peon,	Left, ..	18	3 ij.	3	Ditto ditto. ...	Ditto ditto—doing well.
29th,	Jugguthram, ...	30	Bearer, ...	Right, ...	8	3 iss.	6	Ditto ditto. ...	Ditto ditto—doing well.
Oct. 3rd,	Nusseeroodeen,	30	C. H. Chpsee.	Right, ...	14	3 ij.	3	Ditto ditto. ...	Ditto ditto—doing well.
4th,	Seeriekissen, ...	28	Bearer, ...	Right, ...	5	3 j.		Ditto ditto. ...	Not seen after the 6th—doing well.
.....	Baberally, ...	30	Bheestie, ...	Double,	6 left, 4 rgt.	3j.ech.	4	Ditto ditto. ...	Ditto ditto 7th—doing well.
5th,	Maunoolah, ...	32	Brkz. Sd. D.	Double,	8 left, 28 rgt.	3 j. 3 iij.		Ditto ditto. ...	Discharged—doing well.
9th,	Hafiz Moydeen, ...	34	Shop-keeper,	Double,	7 left, 5 rgt.	3 ij. 3 j.		Ditto ditto. ...	Discharged doing well on the 20th—not seen since.
13th,	Alleemuckkie, ...	20	Chpdr. Sd. D.	Left, ...	36	3 iij.		Ditto ditto. ...	Not seen after the 20th.
.....	Peerkhan, ...	20	Chpdr. H. Lp.	Left, ...	20	3 ij.		Ditto ditto. ...	Do. do. 20th, when doing well.
.....	Ooseeoodeen, ...	25	Pers. student,	Right, ...	8	3 iss.		Ditto ditto. ...	Ditto ditto 18th.
18th,	Meahjaun, ...	26	Khitmutghar,	Right, ...	5	3 j.		No treatment. ...	Ditto ditto operation.
.....	Moraudizzumah,	30	Prs. student,	Left, ...	8	3 iss.		Purgative & lotion.	Do. do. 21st, when doing well.
.. ...	Gowsie, ...	25	Toddy shpkr.	Left, ...	20	3 ij.		Ditto ditto. ...	Seen on the 29th—cured.

Date.	Names.	Age.	Trade or Occupation.	Side or sides operated on.	Quantity of fluid drawn off.	Quantity of solution injected.	No. of days in Hospital.	Treatment.	Remarks.
					oz.				
Oct. 21st,	Ramjhue, ...	25	Chokeydar,...	Right, ...	28	3 iij.	3	Purgative and lotion. ...	Not seen since 24th inst.—doing well.
.....	Jahith Khan, ...	30	Khitmutghar,	Double,	8 rgt. 4 left,	3 iss.	4	Ditto ditto. ...	Seen on the 28th—doing well.
23rd,	Commal, ...	35	Bheestie, ...	Double,	32 rgt. 10 left,	3 iij. 3 iss.	4	Ditto ditto. ...	Ditto ditto 31st—doing well.
31st,	Jhengut, ...	24	Daury, ...	Right, ...	20	3 ij.	5	No treatment. ...	Dcgd. cured on the 4th Nov.
Nov. 1st,	Sadue, ...	23	Coolie, ...	Left, ...	10	3 iss.	4	Purgative & lotion.	Not seen after he left Hospl.
18th,	Noroharee Like,...	25	Oilman, ...	Left, ...	10	3 iss.	...	Ditto ditto. ...	Seen 1st Dec.—cured.
.....	Sadue, ...	25	Maihter, ...	Left, ...	5	3 j.	...	No treatment. ...	Not seen after the operation.
24th,	Kumeeroodie,.....	28	Police peon,	Left, ...	8	3 iss.	5	Purgative and lotion. ...	Not seen after he left the hospital, when doing well.
25th,	Shaik Madoo,.....	26	Bheestie, ...	Left, ...	20	3 ij.	4	Ditto ditto. ...	Ditto ditto.
Dec. 2nd,	Jerriff,.....	45	Cn.to Dr.Vos,	Left, ...	20	3 ij.	4	Ditto ditto. ...	Dg. well when discharged.
4th,	James Taylor, ..	27	Clerk, ...	Left, ...	8	3 iss.	10	Ditto ditto. ...	Discharged cured.
7th,	Dursun, ...	35	Bearer, ...	Left, ...	26	3 iss.	...	No treatment. ...	Not seen after the operation.
15th,	Beenuth Khan,	45	Hurkara, ...	Left, ...	24	3 ij.	...	Purgative&lotion.	Dg. well when last seen, on 20.
16th,	Shaik Edue, ...	50	Tailor, ...	Right, ...	92	3 iv.	8	Ditto ditto. ...	Dschgd. cured on the 23d Dec.
17th,	Cossinauth,.....	50	Sircar, ...	Double,	24 left, 4 rgt.	3 ij. 3 j.	...	Ditto ditto. ...	Doing well.
20th,	Horrie, ...	36	Bearer, ...	Right, ...	50	3 iij.	...	Ditto ditto. ...	Ditto.
21st,	Mahmud Summie,	26	Moonshie, ...	Right, ...	16	3 ij.	...	Ditto ditto. ...	Ditto.
.....	Poraun, ...	40	Mussalchee,	Left, ...	5	3 j.	...	Ditto ditto. ...	Ditto.
26th,	Leekah, ...	29	Daury, ...	Double	4 left, 10 rgt.	3 j. 3 iss.	5	Ditto ditto. ...	Discharged 31st Dec. cured.
30th,	Domun Sing, ...	38	Hurkara, ...	Left, ...	12	3 iss.	...	Ditto ditto. ...	Under trmt. as out-patient.

ACCOUNT

OF AN

ACETO-SPIRITUOUS TINCTURE

OF

CANTHARIDES.

By D. S. YOUNG, Esq.

Presented March 7, 1835.

I have the honour to forward a small quantity of an Aceto-spirituous Tincture of Cantharides for submission to the Medical Board, under whose auspices I trust its powers will be put to the test.

2. For the last two years I have been in the habit of using this preparation as a substitute for the Emplastrum Lyttæ.

3. The part to be blistered is rubbed for about three minutes, or until a pricking pain is felt, and an efflorescense of the skin manifests itself.

4. In the generality of cases complete vesication will be produced in two hours, and I am not aware of a single instance of its inducing symptoms of strangury, whilst every purpose, for which the Emplastrum Lyttæ could be employed, was fully answered.

5. A patient may, if restless and suffering from pain, tear off a common blister, or the dressings

may shift from their proper place, and produce vesication, far beyond the particular part required.

6. These inconveniences cannot possibly occur when the Liquor Lyttæ is employed, as its effects never diffuse themselves beyond the spot, to which the fluid is applied.

7. This medicine has been tried, and approved of by many of my professional brethren, and the Medical Officers of H. M. 45th Regiment have expressed a very high opinion of its utility and efficacy, and the recorded sentiments of the Medical Society of Calcutta are in unison with those of all the members of the faculty, who have had opportunities of witnessing its effects.

8. The Liquor Lyttæ can be carried about in a small compass, and I have still some in my possession, which must have been prepared three years ago, but which is now as powerful as ever, and I believe, that with common care, its virtues will remain unimpaired for many years. How different the case of the Emplastrum Lyttæ, of which every man of medical experience has had but too often to lament the uncertainty!

9. I have found the Liquor Lyttæ to answer admirably in the fevers of children.

10. A severe ear-ache will generally yield to one application, and in diseases of the eye requiring local counter-irritation, the remedy would appear to answer every purpose.

11. In one instance of incipient cataract it was highly beneficial.

12. A lady who was subject to an affection of the lungs got a small quantity of the Liquor Lyttæ from me, and applied it herself whenever she felt the tightness across her chest come on, and always with certain relief.

13. Without multiplying the instances of the utility of this remedy, I beg to state, that in 1832, I received from Mr. Snowdon, of the Hay-market, a few ounces of the Liquor Lyttæ, with the following memorandum.

"The Liquor Lyttæ is an Aceto-spirituous Tincture of Cantharides, and will be found to be a good substitute for a common blister."

There was no formula for its preparation sent, but I succeeded in preparing it myself, as follows:

Take of concentrated acetic acid, nine ounces.
Rectified spirits, three ounces.
Spanish flies, four ounces.

The Spanish flies to be coarsely pounded, and put into a wide-mouth glass-stopper bottle, when the acetic acid and rectified spirits are to be added. Let the whole digest for five days exposed to the sun, be then strained through flannel, and kept for use. The quantity will be about eight ounces.

14. The modus operandi, appears to be simple, and may be explained thus:

"The immediate effloresence of the skin is in all probability produced by the acetic acid, and a

highly inflamed surface, is thus presented to the action of the Cantharides, by which its operation as a vesicatory is expedited."

15. I am led to this view of the matter, from having applied the concentrated acetic acid to the skin,—it produced an efflorescence, which terminated in a simple dry desquamation of the cuticle.

16. In conclusion, I may be permitted to state, that Apothecary Peacock had a supply of the Liquor Lyttæ given to him when on detachment duty near the Kistnah, the Cholera broke out in camp, and he describes in his reports, in strong terms, the great benefits derived from the application of the remedy in many cases of the epidemic, from the rapidity with which vesication was produced.

Memo.—The prime cost in London of 1 lb. of Emplastrum Lyttæ is 6*s.* 6*d.* sterling: this quantity can be made into 25 blisters, each from 4 to 6 drachms.

2. 1 lb. of Liquor Lyttæ can be made up at Hyderabad for 16*s.* 8*d.* sterling, and will produce about 200 blisters, at from 30 to 50 minims each blister.

3. Very large blisters will of course require a proportionally large quantity of both the Emplastrum and Liquor Lyttæ.

4. Independent of the uncertainty of the Emplastrum Lyttæ, the Liquor Lyttæ in point of expense, if brought into general use, would effect a considerable saving in the proportion of 62½ to 200, being almost two-thirds.

5. The Emplastrum Lyttæ takes from 8 to 12 hours to produce vesication, the Liquor Lyttæ from 2 to 4 hours only.

ON THE EFFECTS

OF

THE ACETO-SPIRITUOUS TINCTURE

OF

CANTHARIDES.

By W. TWINING, Esq.

Presented February 7, 1835.

The Aceto-spirituous Tincture of Cantharides has been employed at the General Hospital in sixteen cases, of which a memorandum is annexed. This medicine has invariably produced the effect stated by Mr. Young, namely, it acts as a rubefacient if quickly brushed once over the skin; and when the skin is freely wetted with the tincture and rubbed for the space of three minutes, a perfect vesication is usually formed in about two or three hours. The blister has been in all cases more complete, and contained more serum, than that produced in twelve hours by the Emplastrum Lyttæ. The remedy can be more exactly confined to the part which we desire to affect, and the margin of the vesication is well defined; the whole of the cuticle is more generally removed than by the common blistering plaster, and a more prompt and more free suppuration usually takes place.

The pain produced by the application of this tincture is more severe, but much more transient, than that caused in any given time by Emplastrum Lyttæ, but at the time, that it is rubbed on the skin, no pain is produced. In only one of the sixteen cases did any irritation of the urinary passages occur, and that was in Carter, a paralytic patient, in whom a blister was produced from the occiput to the sacrum. The irritation of the urinary passages, now alluded to, was described rather as ardor urinæ than strangury, and the inconvenience caused by it was neither severe nor of long duration. In this case it would have been hardly possible to confine a long blister so exactly to the part, which it was intended to affect. A perfect vesication was produced in two hours, the margins of which were distinct and well defined; and its effects had not spread beyond the part required to be blistered.

I need hardly allude to the advantage of a blistering agent of this sort, requiring no binding, which in cases of children under any disease, as well as in adults who are suffering from Delirium Tremens, or mania, is of much importance. In cases of diseased testicle the extent of the blister can be more easily confined to the part required to be affected, than a blistering plaster. In many cases of Remittent Fever, it is an object to stimulate as well as to raise a blister quickly, at some particular period of the paroxysm, while it is very

desirable that the stimulant effect should have subsided before the recurrence of the period of reaction of the system, which again takes place. In such cases, if the common Emplastrum Lyttæ be applied at the time the remedy is most requisite, its effects only become evident at a period when we could have wished its stimulant effects had ceased. As an application for the purpose of blistering diseased joints, I have found this more appropriate and effectual than the blistering plaster, as was proved in the case of Dwyer, whose case is among those now presented. In two cases of indolent ulcers with thickened raised and inverted edges, I have applied the Aceto-spirituous Tincture of Cantharides, with the best effect. The chronic disease of the edges of these ulcers was subdued by the 2nd application, and the sores quickly put on a healing aspect.

The small space requisite for this remedy in the medicine chests of Military Regimental Hospitals is of some importance. The quantity required to blister, in the sixteen cases now alluded to, as well as that to be applied to the edges of the two indolent ulcers, was less than one ounce, as only half the quantity sent by Mr. Young was reserved for my experiments. It appears to me, that the Aceto-spirituous Tincture of Cantharides is a most valuable preparation, in many cases superior to the Emplastrum Lyttæ, and in no respect inferior to that remedy, which it may entirely supersede.

January 27, 1835.

CARTER.—The Acetous Tincture of Lytta applied to the spine, produced in two hours a very good blister.

SARSON.—The same application to the epigastre, produced numerous and distinct vesicles, in three hours.

DWYER.—The same application to the cœcum, raised in two hours a good blister.

KINSMAN.—The same application to the chest, produced in two hours a deep efflorescence, and ultimately a good blister.

DWYER, H. M.'s 49th.—The same application to the wrist, caused a very good blister in two hours.

BROWN.—The same Tincture applied for a few seconds to the spine, produced a deep efflorescence on the surface.

CHRISTIANA.—The same application to the epigastre for three minutes, produced a good blister.

PEDRO.—The Tincture applied for a few seconds acted as a Rubefacient.

JOHNSON.—The same applied for three minutes to the cœcum, produced a good blister.

GLENDINNING.—The same applied to the epigastre, produced a good blister.

HOFF.—The same applied to the left iliac region, produced a good blister.

WHITTINGTON.—The same applied to the left side of the epigastre, produced in four hours a good blister.

HAWKS.—The same Tincture applied for three minutes over the spleen, produced in four hours a good blister.

BURNS.—The same application over the spleen, produced in three hours a good blister.

MORGAN.—The same application to the left iliac region, produced in six hours a tolerable blister.

HARRIS.—The same application to the epigastre, produced in four hours a good blister.

REPORT

ON

THE LIQUOR LYTTÆ.

By D. STEWART, Esq.

Presented February 7, 1835.

I HAVE tried the fluid, handed to me at last meeting of the Society, for experiment, under the name of Liquor Lyttæ, in six cases, two of which were blistered on the knee, two on the shoulder, and two along the spine. All were cases of Rheumatism, occurring in natives of the country.

The fluid was applied by means of a dossil of lint or tow dipped in it, and then rubbed backwards and forwards for several minutes. The lint was occasionally wetted during this operation, which generally caused a pungent pain in about the space of time mentioned, when the friction was discontinued, and the parts left uncovered to dry. About six hours after, vesicles began to form, which in eight or ten hours more were quite full of the usual fluid, having the cuticle smoothly and uniformly distended. In one case only did the fluid cause vesication by trickling along the skin; in all the others friction seemed necessary to produce this effect.

I consider the Liquor Lyttæ a valuable addition to our Indian pharmacopeia, it being in my opinion the most convenient, as well as effectual, and cleanly means, we possess of producing a definite and circumscribed vesication over joints or other irregular surfaces; and preferable to any other epispastic when from restlessness or any other cause, a patient cannot be got to endure the continued application of a blistering plaster.

CASE

OF

CONGENITAL CATARACT

IN

BOTH EYES,

SUCCESSFULLY TREATED BY OPERATION.

By D. S. YOUNG, Esq.

Presented December 6, 1834.

A BLIND boy, Æt. 12, named Kurreem, was sent to me by Captain Carleton, at the Residency of Hyderabad. He had congenital cataracts in both eyes; the boy stated that he knew the difference between day and night, but could not see any objects that were presented to him. He had no conception whatever of colours.

The pupils dilated and contracted in a healthy manner, and as the case appeared favourable, after the pupil was dilated with belladonna, I opeated on the left eye, passing a spear-pointed needle (the same used by Dr. Richmond on the Bombay side of India) into the posterior chamber, in front of the crystalline lens, in the usual manmer, which I need not detail. I lacerated the anterior capsule, and discharged the whole contents,

which were milky and flocculent, into the anterior chamber. I was now obliged to withdraw the needle, having, from the turbidity of the anterior chamber, no means of conducting any other steps of the operation, that might have been necessary without danger to the iris. The instant the fluid contents of the capsule, by freely mixing with the aqueous humour, had become diluted, so as to admit of the partial transmission of light to the retina, the boy saw the objects around him, and his language and gestures were highly expressive of the delight he experienced, from enjoying the first manifestations of a new sense. I had the eye tied up, and a wet cloth kept to it, that had been dipped in an astringent wash. In 72 hours, the whole of the fluid cataract had been absorbed, the anterior chamber had become free from turbidity, and a very small portion of the capsule could be seen, below the axis of vision. The pupil was clear and black, and contracted powerfully; but the light was so painful and embarrassing to the poor boy, that he would not for several days permit the bandage to be taken off.

On the 10th day after the operation, the sight had improved so much, and the susceptibility to light had so far abated, that I operated on the other eye, but found a soft cheesy cataract; and having lacerated the anterior capsule, and cut up the lens into as many small fragments as possible, I pushed several into the anterior chamber, couched one large fragment into the vitreous humour,

and after destroying some adhesions to the uvea, I left the case to the absorbent powers of the aqueous humour.

In six days, the pupil was black, and clear, and all the fragments of the lens had been absorbed; the sight was better in this, than in the other eye: little inflammation supervened.

Both operations were formidable from the rolling of the eye, which my assistants on the occasion will not readily forget; and it may be as well here to state, that whenever I find a rolling eye, as I never use a speculum, I invariably pass the needle boldly in towards the centre of the eyeball, and having once pierced the coats, I bring the needle forward, as I have never found in nearly a hundred cases, that once they are perforated in the proper place, any after-rolling of the eye will impede the operation.

At page 520, in the 2nd vol. of Dr. Roget's work on "Animal and Vegetable Phisiology, (No. 5 of the Bridgewater Treatises,") the following extract is of so apposite a nature, that I shall perhaps be excused for copying it: "The objects of sight "and touch, as Bishop Berkeley has justly ob- "served, constitute two worlds, which, although "they have a very important correspondence and "connexion, yet bear no sort of resemblance to one "another. The tangible world has three dimensi-

"ons, namely, length, breadth, and thickness; "the visible world only two, namely, length and "breadth. The objects of sight constitute a kind "of language, which nature addresses to our eyes, "and by which she conveys information most im- "portant to our welfare. As, in any language the "words or sounds bear no resemblance to the "things, they denote; so in this particular lan- "guage, the visible objects bear no sort of resem- "blance to the tangible objects they represent.

"The theory of Berkeley received complete "confirmation by the circumstances attending the "well-known case described by Cheselden, of a "boy, who, from being blind from birth, suddenly "acquired, at the age of twelve, the power of "seeing, by the removal of a cataract. He at first "imagined, that all the objects he saw, touched his "eyes, as what he felt, did his skin; and he was "unable either to estimate distances by the sight "alone, or even to distinguish one object from "another, until he had compared the visual with "what has been called the tactual impression."

On my return from the Residency to Bolaram, I brought the boy with me, and have for some time been engaged in the interesting task of giving him some instructions relative to colours, &c. He can now tell you any colour; but if the boy wishes to be very correct, when you ask him the name of any thing presented to him, he first looks

at it, and if he has seen it before, and it had been explained, he will at once say, a book, a stick, a table, a chair—your face, your hand; but if the object is new, he will tell the colour, and then feel it with his fingers; and should it turn out to be any thing he had been accustomed to handle before he got his sight, he will at once exclaim, a pair of scales, a jumbo, kutorah, a seer weight, chillies, curry stuff, rice, &c. &c.

Several native oculists from Bengal have visited Hyderabad within the last twenty years, but their success has fallen very far short of what I have read in the 2nd vol. of the "Transactions of the Society." Their practice is almost entirely confined to couching, and I have only known one instance of extraction, through the usual section of the cornea. The corneal section appeared to have healed without a cicatrix; but unfortunately, it had been made into the arcus senitis, (the man was 60,) and the cornea became perfectly opaque, to the axis of vision; the iris was jagged and angular, and must have been injured by the knife, during a too sudden discharge of the aqueous humour.

Mr. Stevenson very justly remarks, that "In "the complete congenital cataract, the postpone- "ment of the requisite operation is productive not "only of the loss of early education, but of a change "from an easily curable, to a dense, coriaceous, "and very intractable state of the capsule, an un-

"steady convulsive, and unassociated motion of "the eye-balls, and an impaired perception in the "nerve subservient to vision."

In the case of this poor youth, I have little doubt, that there will be a gradual improvement in the perception of the optic nerve, and that he may in time have a degree of vision sufficient to enable him to earn his bread, as he is far from being deficient in intelligence.

Except in very dark, hard cataracts, I should prefer the absorbent plan, to either couching or reclination, and I recommend its adoption most strenuously to my professional brethren.

Before closing this case, I shall send for the lad, whom I have not seen for two months, and state any further particulars, regarding him, that may be interesting.

Bolaram, 6th November, 1834.—The boy has just arrived, and it is exactly three months since I operated; his vision is much improved, and he now seems to recognise almost every object that is brought within a foot of his eyes. Distant objects he describes as either light, or dark; but he has no correct perception of them. His field of *distinct* vision is therefore very limited; but he has lost much of the awkwardness and helplessness, which were so apparent two months ago,

and now walks about with some confidence. The eyes, with the exception of a rolling and want of entire association in their movements, have a healthy appearance.

It is very evident, that the poor boy is much happier since the change, and his case has excited so much sympathy amongst the natives (who amuse themselves by asking him questions), that he is abundantly supplied with all the necessaries of life, and in this respect has been a great gainer.

CASE

OF

ARROW-WOUND OF THE HEAD.

By A. STORM, Esq.

Presented by the Medical Board.

Captain ——, while on service, received on the morning of the 24th of October two arrow wounds, one in the head, and the other in the back. For some marches the detachment was without tents, and exposed during the night to heavy rain. On the morning of the 27th I met them returning. Captain —— informed me, that he felt slightly stunned when wounded, and that the arrow could not be withdrawn without force; but he did not complain of much uneasiness. The wound was in the middle of the occipital bone, and was partially closed. We reached cantonments on the evening of the 28th. On the 31st; as he complained more of his head, and felt feverish, he was reported sick on the 1st of November; had a purgative on that day, and in the evening was bled to syncope, and next day 50 leeches were applied to the head.—2nd. He felt greatly better, and his bowels had been acted on, two or three times; the wound appeared a little puffy; it was opened with a lancet, and a poultice applied: tongue very foul and loaded. —3rd. Complained of head-ache; tongue still foul;

pulse full and frequent: was again bled to 16 ounces, and purged by calomel and colocynth: stomach irritable, and could retain no fluid medicine. —4th. Stools very offensive; head-ache chiefly confined to the temples; skin hot and feverish; calomel, in four grain doses, was given three times, and blood extracted by cupping from the neck.—5th. Shifting pain in the head; wound discharging a small quantity of good pus; tongue loaded, stools dark and offensive; again cupped: calomel continued, and a purge of colocynth and resin of jalap given, which acted freely.—6th. Felt much better: skin less hot and more moist; stools dark and offensive; pulse 80; tongue cleaner. About 8 o'clock P. M. sat up in a chair, and complained soon after of being cold, shivered, and again said, his head gave him great uneasiness; 14 ounces of blood were taken from the arm, and 40 leeches put on his head, which had been previously shaved, and cold clothes applied; calomel in 5 grain doses was given during the night, every two hours.—7th. Calomel was continued, and his bowels pretty freely opened by enemata: pulse 80; is sensible when roused; but occasionally talks incoherently; pain of head moderate; again leeched and cupped; stools green; black and fetid; bowels moved with difficulty; tongue furred and dark; urine high coloured; pupils sensible, and no paralysis of either arms or legs; pulse variable in strength: a blister was put on the neck, wound again opened, giving vent to a slight discharge, and 50 leeches applied to

the occiput. The bone was felt bare, as on former occasions; but the probe could not be made to enter the cavity. From this time, until the morning of the 14th, when he died, he gradually got worse. The fever came on every second day, with a slight exacerbation on the intermediate ones; his mouth was a little sore from the mercury, but the stools continued, dark and fetid to the last; he was at times sensible, but for the last two or three days comatose.

The head was examined on the 14th. The scalp presented nothing remarkable; on raising the skull, about an ounce of dark venous blood escaped; the pericranium was detached for a small space near the wound; membranes generally were free from disease; the vessels of the brain rather more turgid than usual. The arrow, a round one, had penetrated a little to the left of the centre of the occipital bone, slanting to the external wound. The dura mater and brain had been wounded, the latter not deeply: two splinters from the internal table were loose: one of them, about the size of a split pea, was lying on the dura mater, near the wound; there was no depression of bone. On opening the dura mater, about half an inch from the surface, an abscess was discovered; the left lateral ventricle was also full of matter; in both abcesses pus to the extent of two or three ounces was contained. The substance of the brain in the tract of the abcesses was pappy and soft.

CASES

OF

COLICA PICTONUM, WITH OBSERVATIONS.

By D. STEWART, Esq.

Presented December 6, 1834.

During the past month, several cases of Colica Pictonum have occurred in the Howrah Seaman's Hospital, under somewhat remarkable circumstances. The patients were part of the crew of a vessel lately from England, who during their voyage to Madras, a period of about four months, had lived upon salt-meat, which was transferred once a fortnight, from the barrels in which it was stored, into a large leaden tank, from which the daily rations were served out.

The tank is said to have been carefully cleaned out on these occasions; but a crust of white-lead was always found to have accumulated in the intervals.

From the date of arrival at Madras, until the time here, when the sickness became general, eight or nine weeks elapsed; and, as I understood from the surgeon of the ship, twenty cases of violent colic came on nearly at the same time—nine of which have proved fatal. For several weeks

previous, a general unhealthiness of appearance had manifested itself among the crew ; and sickness characterised by irregularity of bowels, head-ache, lethargy, loss of appetite, &c. was general ; but the probable cause was not once suspected, until a case of marked colic occurred, which was not until eight weeks after the vessel's arrival at Madras.

From that period, (their arrival at Madras,) very little of the tainted meat was used, and the crew, under the command of a most humane captain, had a plentiful allowance of fresh meat and vegetables *daily*.

The fits of colic generally came on at night, with violent spasms of the lower belly, shooting down the inside of the thighs and legs, sometimes affecting the chest and loins : generally also some degree of head-ache was acknowledged, though not complained of ; the principal nervous symptoms being anxiety of countenance, low spirits, and lethargy. Costiveness was an invariable symptom ; and I believe *all* the worst cases proved fatal with convulsions.

Of the cases, which came into the Seaman's Hospital, No. I, was that of the butcher, a fine young man, Æt. 21, who had never had a day's previous illness. He was in very great alarm about himself on admission, and complained a good deal of head-ache. He had been suffering from colic

pains for about a week, had been bled, and had taken powerful purgatives without effect. Twenty leeches were applied to the head on admission, and an enema of Ol. Ricini and Ol. Terebinth. was administered, which came away almost immediately, without any fæces. Towards evening, upon the supervention of the colic paroxysm, an opiate, with two ounces of mucilage, was administered as an enema; hot fomentations were applied round the body, and Calomel, gr. x., Ipecacuan. gr. ii., Opii gr. iss. were given in pill.

He passed, nevertheless, a restless night; the pulse continued perfectly natural, and there was no heat of skin.

Next morning he was free from griping, much exhausted, and sleepy.

One ounce of turpentine and the same quantity of castor oil was given: the head was shaved, and kept cool. Stimulant embrocations were employed for two hours along the spine, and one or two domestic enemata were administered. In the evening, no stool having been procured, the belly being distended, an infusion of 10 grains of tobacco in six ounces of water was thrown up, into the head of the colon, by means of the long flexible tube of Read's patent syringe, and repeated twice, with half an hour's interval. This was followed by copious, green, feculent, and mucous discharges, with much disengagement of wind; but the abdomen was not reduced in size.

A severe paroxysm of colic came on about 9 P. M. and was soon followed by violent convulsions of the limbs, and high delirium. Twelve ounces of blood were taken from the temporal artery, and a large blister was applied to the nape; but the convulsions continued all night, the delirium subsided into insensibility, and he died in the morning.

Upon examination of the body, a considerable serous effusion was found under the tunica arachnoidea, and in the ventricles.

The cerebral mass itself was not particularly vascular; the membranes at the base of the brain were greatly congested, though none of the products of inflammation were there perceptible.

The small bowels lay coiled in a ball, pale, empty, and contracted, covered by a thin transparent healthy omentum. The mesentery and its glands were perfectly natural. The colon throughout was enormously distended, very thin, of a dark leaden colour; in several places it was partially crossed by narrow bands of white intestine, which never quite surrounded it: a portion of the ascending colon, of about three inches long, had one-half of its cylinder of a natural colour and thickness, while the opposite half, bulged out like an aneurismal bag, was quite thin, and of a dark leaden colour.

No. II.—The second case was that of a boy, who had a fit of some sort on board, and was bled;

after which, he was sent into hospital. Besides the usual symptoms, viz. nightly paroxysms of colic, obstinate costiveness, pains in the loins and limbs, he had a large flabby tongue, thickly furred, and paralysed on one side. How long it had been so I could not ascertain. Fifteen leeches and a blister were applied to the nape. The tobacco injection was the first thing to procure alvine evacuations; an opiate enema was administered at night; and the only medicine afterwards given was the following draught, three times a day:

R. Ferri Sulphat.
Quininæ Sulphat. āā gr. 1½.
Magnesiæ Sulph. ʒ ii.
Tinct. Sennæ ʒ ii.
Acid. Sulph. Dilut. gtt. xii.
Infus. Gentian. ʒ x. Ft. Haustus.

Under the continued use of these simple draughts, and an embrocation along the spine, for eight days, copious evacuations were procured daily: his tongue gradually grew clean, and recovered its functions; his bloated sallow appearance went off, and his general health and appetite improved.

No. III.—Was Boatswain of the same ship. The symptoms of colica, though well marked, were not so severe as in either of the former cases. He required no other treatment than one or two tobacco injections at the beginning, the warm bath daily, and the above draughts, which seemed in all the

cases to keep up the peristaltic action, when once restored by the tobacco injections, remarkably well.

No. IV.—Another petty officer of the same ship is still in Hospital. Besides the symptoms of colic, he had evidently those of inflammation of the upper surface of the liver. He required two small bleedings, repeated leeching, blisters, and Calomel. The colic spasms affected his chest more than any of the others. This man took two drops of Croton Oil in an ounce of Castor Oil, three times, in succession, without any effect, and the bowels yielded to nothing, until after two injections of tobacco, thrown far up, as described. He is now taking the Steel and Quinine draughts, and doing very well.

No. V.—A seaman; had not any colic pains at all, but his bowels were obstinately costive, his tongue thickly furred, his face sallow and emaciated, his appetite gone, and he had very low spirits.

He took nothing but the Steel and Quinine and Salts mixture, and went out after a week.

No. VI.—A lad was admitted from the same ship on the 20th of the present month, suffering severely from colic pains, like the others, chiefly attacking him at night; the greater part of which

he passed in bed upon his knees, the only position which gave him relief: he had a hard retracted belly, pains in the back and limbs, no head-ache, a dry foul tongue, and a pale sallow countenance.

The bowels were obstinately costive, and common enemata had no effect. The case differed from the others in the existence of an acute pain along the ascending and descending colon, felt upon pressure with the points of the fingers, although greatly relieved by pressure with the flat hand. The pulse was not affected.

Concluding from this complication of symptoms, that besides the specific effects of the poison upon the muscular coat, there existed a distinct inflammation, confined to the peritoneal coat of the bowel, twelve leeches were applied on either side, and repeated after six hours; Calomel in small doses, with Ipecacuanha, Aloes, and Hyosciamus being given every hour meanwhile. Next day, copious evacuations were procured, by injections and Senna mixture; after which, the usual draughts were given to recruit the health and restore the tone of the bowels.

A number of interesting reflections are suggested, by the consideration of these cases. The most remarkable circumstance connected with their history is the length of period, which intervened between the administration of the poison, and the

supervention of the acute symptoms of Colica Pictonum. On this head I find it stated by Dr. A. T. Thomson, that the effects of the poison of Carbonate of Lead are cumulative, like those of Digitalis; and the above cases seem to be strikingly illustrative of this observation, and may account for the universality of the seizures about the same time.

He likewise states, that he is quite satisfied, that the "Carbonate is the only poisonous salt of lead." The salt deposited in this instance was unquestionably the Carbonate, the formation of which must have been greatly accelerated by the decomposition of the brine, in which the meat was kept.

If a pathological deduction may be drawn from such scanty premises, may we not consider the appearances on dissection of Case No. I. and the symptoms in No. VI. as strikingly corroborative of Dr. Abercrombie's views of the nature of Ilius; —are we not also justified, by the evident good effects of depletion at the outset, and the powerful effect of the saline laxatives afterwards, in concluding, that the disturbance of the nervous functions, the cerebral lesions, the violent pains, the loss of muscular tone in the bowels, &c. are primary effects of the poison, and not consecutive, or sympathetic, merely of the alimentary affection?

This supposition is strengthened by the fact, that in all recorded deaths from Colica Pictonum, morbid appearances have been found, in the cerebral structure, and that the deaths are usually sudden; and consequent upon some apoplectic or epileptic seizure.

I was led to use the stomach pump as an enema syringe for the tobacco infusion, from having experienced its admirable effect in a case of Ilius in an infant, which I narrated to the Society some time ago. Besides giving vent to a great deal of wind, obstructions, (or spasms, if such things exist,) are thus mechanically overcome; the fluid itself is sure to be retained for a longer time, and its effects upon the irritable fibre are therefore more likely to be produced.

Howrah,
Dec. 5, 1834.

APPENDIX.

No. 1.

Extracts from Letters from F. Furnell, Esq. Assistant Surgeon, Civil Station of Sylhet, on the Vaccine and Variolous Diseases at that place, February, 1834.

Being very anxious to obtain a constant supply of vaccine virus, (that which I got from Dacca at various times having been followed by eruptions all over the body, and often with much fever,) I was much interested by the account in the Transactions of the Medical Society, detailing Mr. Macpherson's success in procuring vaccine lymph from the original source, (the cow). I therefore in September last, endeavoured to procure it in the same way, and having heard that several cows in the neighbourhood of Sylhet were affected with the disease called Mata or Gotee, I succeeded in getting one that was recovering; but which had a number of dry scabs over its body. From those scabs I vaccinated four children, without effect. My health being very bad at the time, I was recommended to try Chirra, for change of air, and left Sylhet, requesting Mr. Brown (who kindly undertook my duty), to follow up the trial; at the same time, offering a reward to any person who would bring a cow having the disease. Ere I returned to Sylhet, Mr. Brown vaccinated several children, the first four direct from the cow, and afterwards continued vaccinating from these children in succession. In the first four, the vaccine vesicle appeared most favourably on the eighth day, and in those who were vaccinated from them, the disease also appeared well marked on the eighth day. On my return I found all in a fair train, as I thought, and continued vaccinating until the middle of November, when I was again obliged to go to Chirra for the benefit of my health. During my

absence, Mr. Brown vaccinated Major Orchard's child on the 23rd of that month. On my return on the 30th, I found that the vesicle did not appear in so forward a state, as it should have been; but from its appearance I thought that it had only been retarded in its progress, as at the time the baby was vaccinated, she had a slight teething rash. On the 1st December, it looked much better, and on the evening of that day (the eighth of the vaccination) she had slight fever, and got in the evening a grain of Calomel, and in the morning following, some Castor-oil, which affected her bowels slightly. On the evening of the 2nd, the dose of Calomel was repeated, and followed by oil next morning. The fever continued, but slight. On the 3rd day from the commencement of the fever, an eruption similar to that preceding small-pox appeared, and in four days from that, she was completely covered with an eruption resembling the small-pox in its confluent form, which ran through the same course as natural small-pox. She was quite well on the 18th December, with a few of the pocky scabs scaling off.

Before the above mentioned eruption made its appearance, three native children, that were vaccinated on the same day as Mrs. Orchard's child, and from the same source, were brought to me, and the vesicles having a most favorable appearance, I vaccinated my own baby from one of them. On the 1st December, being much alarmed on seeing the eruption on Mrs. Orchard's little girl, I sent for the boy, from whom she was vaccinated, and found that he had had very little fever; but he had a few scabs, about 20, on his entire body. I also had the three children (who were brought to me on the day my little one was vaccinated) with me daily. None of those children had fever for more than one day. In two of them a slight eruption, say ten or twelve little pimples on each, and on the third child there was not an eruption of any kind, and the vaccine vesicle in all of them went through its regular course. Notwithstanding this, I took every precaution, and on the 8th day of the vaccination, slight fever having come on, my little one had a little Calomel, and on the following morning, some oil; yet the fever increased, and the dose was repeated on the following evening, and the oil next morning, with the desired effect. On the third day of the fever, a very thick eruption appeared on the face, and followed the course of small-pox in its worst form. On

the 7th day from the commencement of the eruption, her mouth and throat became so sore, that she was unable to take the breast or any other food; it was therefore necessary to try to support her by nourishing injections; notwithstanding which, she sunk on the 20th. The above report, it is hardly necessary to say, is given with great pain, but I feel, that it is right to do it, and to warn my brethren of the danger, that sometimes occurs after taking the virus from the cow in this climate.

The Mata, in the cow of this country, is decidedly a much more serious disease than the vaccine disease is in the animal in Europe, and it will be seen from the above statement, that the inoculation from it is in the human subject followed by a most dreadful disease. I will refrain from further remarks, but think it necessary to state, that such precautions were taken in this trial, that it was almost impossible that any admixture of the variolous disease could have been made, as all the children mentioned were vaccinated direct *from* the cow* by Mr. Brown, or myself; as two of the native vaccinators were deputed to vaccinate at the houses of the natives, and the third, in whom I had great confidence, was employed about the station, and brought weekly three or four healthy subjects to be vaccinated from those vaccinated by myself or Mr. Brown. Neither should we have known that the vaccination had been followed by any serious result had it not been for the above melancholy case; as on the strictest inquiry, I cannot learn that any of the native children vaccinated suffered from illness, not one having got any medicine. Not the slightest pitting followed, neither has the eruption left any pits on Major Orchard's child. I have been so ill since the 22nd of last month, that I have been obliged to leave Sylhet, or I should have given this report earlier. I have within a few days learned that Captain Fisher's child suffered also, from a severe eruptive fever after vaccination, from virus sent from Sylhet.

In answer to your question, I mentioned yesterday, that I had heard from Sylhet, that young Mr. Terraneau was suffering under

* The first four from the cow: in the remainder, the lymph was propagated from the first four children.

an affection of the kind. I give you the words of my correspondent: "In my letter yesterday, I mentioned that young Terraneau had an eruption, which I took for one of the varieties of Roseola; to-day, however, it has singularly enough been assuming the identical appearance, which came out on your baby; he was twice vaccinated, first in India, and afterwards in Scotland, and all right." I can only suppose, that he caught the infection from Mrs. Fisher's child. I heard of several cases of small-pox in Sylhet about the time my little one was vaccinated. The native vaccinator, designated the third in the Report, was taken ill about the 25th of December; his case was mentioned as a case of small-pox. However, if it was, it was a very slight eruption, he did not keep his bed after it appeared; he was inoculated when a child.

No. 2.

A Case of Enlargement of the Spleen, with sloughing of the lower lip, and exfoliation of the Alveolar process of the inferior maxillary bone. Communicated by Mr. Charles Reid, *of the Colingah Dispensary.*

Mathur, a native girl, æt. about 15, much emaciated, and very weak, applied to the Colingah Dispensary, in the month of September last, for medical aid. She had been labouring under fever and enlargement of the spleen, upwards of six months, during which period she had taken a variety of medicines from several native Hakeems; and among one of their principal remedies, several *Gools* or issues had been applied over the region of the spleen. When I saw her, her appearance was really frightful; the lower lip had entirely sloughed away, and the alveolar process of the inferior maxillary bone was completely denuded of its periosteum, and in appearance quite black; the fetor arising from the mouth was intolerable, so much so, that none of the other patients could remain near her. She was obliged to conceal the disfigured part of her face with a *Chuddur*. I must confess, at the time I considered her case quite hopeless: her skin was hot and dry, pulse rapid and small, with that peculiar leucophleg-

matic visage so remarkable in spleen patients ; her bowels were torpid, and had not been moved for three days ; I therefore as a preliminary to other medicine gave her a pretty brisk cathartic, composed of Aloes, Scammony, and Jalap, and directed the sloughing part of the mouth to be kept constantly wet with a solution of Chloride of Lime (ʒ i. to the pint of boiling water). As the poor girl resided at Seealdah, a distance of at least three miles, and could not attend daily at the Dispensary, I desired her father to call and let me know how she was. On the following day, I learned that the medicine had operated freely on her bowels, and that although she was exceedingly weak, she felt herself somewhat relieved. I directed the solution to be continued, and ordered six grains of the following powder to be given three times a day :

R. Jalapæ Pulv.
Rhæi Pulv.
Calumbæ Pulv.
Ferri Sulphat.
Potass. Supertart.
Scamm. G. R. Pulv.
Quininæ Sulphat. aa.
Equal part.

I made no alteration in the medicine for ten days, when I repeated the Cathartic above, and the next day again ordered the spleen powders. She continued the same medicine for several months, and I had the satisfaction to see her health gradually but slowly return. The spleen decreased in size, the fetor was entirely removed, and the exfoliating process went on favourably ; small portions of the bone as they became loose, were removed from time to time with a pair of bone nippers, and the larger portion now presented to the Society detached itself, five months and eight days, from the time of my first seeing the patient, and was brought to me by her father. The girl is now perfectly recovered, but experiences considerable inconvenience from the constant discharge of saliva, which necessitates her to keep a cloth always applied to absorb the moisture.

No. 3.

Letter addressed to J. HUTCHINSON, *Esq*, *Secretary, Medical Board, by Dr.* WALLICH, *Supt. of the H. C. Botanic Garden, respecting the Plant yielding the genuine Mudār. Received 31st May*, 1833.

I have the honor to state for the information of the Board, that I have in cultivation at this garden a considerable quantity of the plant yielding the real Mudār of Mr. Surgeon Playfair.

The plant is Mr. Robert Brown's Calotropis procera, (Hort. Kewens. Ed. 2nd, vol. ii. p. 78,) and most probably Roxburgh's Asclepias herbacea, (Flora Ind. vol. ii. p. 50.) It has been excellently figured in Andrews's Botanist's Repository, tab. 271; although under the erroneous name of Asclepias gigantea, (now Calotropis gigantea, Brown,) which name belongs to a widely different species, not only as far as regards its Botanical characters, but probably still more so, its medicinal properties.

As there is strong reason to suspect, that many of the unsatisfactory results, which have attended the experiments made for the purpose of verifying the peculiar virtues ascribed by Mr. Playfair, to his Mudār, have been owing to the above two plants being confounded together, the root of the common Calotropis gigantea having been employed, instead of that of the genuine Mudār plant; and as I can vouch for the individuals cultivated by me belonging to that identical species, the Board may perhaps deem it worth while, to cause some fresh trials to be made; in which case, I shall be most happy to furnish a large supply of the fresh root, during the present hot season.

No. 4.

Facts relating to some Diseases which prevail in Bokhara, extracted from Notes taken by Lieut. ALEXANDER BURNES, *and presented by* M. J. BRAMLEY, *Esq.*

1. *Dracunculus.*—Among the diseases of the country, the most distressing is the Guinea worm, here called "Reshter."

It is confined to the city of Bokhara. The inhabitants believe, that the disease arises from drinking the water of the cisterns in summer, when they become fetid, and infested with animalculæ.

Travellers suffer in the same manner as the inhabitants, but it never shews itself till the year following that, on which they have drank the water. Many of the Afghans are attacked after returning to Cabul, and whatever be the cause, it assuredly originates from something peculiar to the capital, since all other parts of the country are free from it.

It is supposed that one-eighth of the whole population of Bokhara are annually attacked with Guinea worm.

The prevalence of the complaint has given the natives a dexterity of extracting these worms quite unknown in other countries. Immediately it is discovered, that one has formed, *and before the swelling* has taken place, they pass a needle under the middle of the worm, and rubbing the part, draw it out at once. They are generally successful; but if the worm breaks, the pain is excessive, and the wound suppurates, and few recover under three months. If the animal be coiled in one place, and is superficial, the extraction of it is simple; if deep in the flesh, more difficult.

If the swelling has commenced, they do not attempt the operation, allowing it to take its course. They then draw it out by degrees, as in India. These worms vary in length from three to four spans. It is said that Guinea worm is most common among people of a cold temperament, but it does not attack any particular class. The better orders of people send to the river for water, and never drink that of the cisterns, till boiled. It is not to be supposed, that I can

give any solution of the causes of this disease. The doctors of Toorkistan believe it to be a worm generated in the manner above mentioned. They have no notion of its being a diseased lymphatic as asserted by some of the Indian faculty, nor can I credit its arising from the animalculæ of the waters, as these must be destroyed in the stomach.

2. *Mukkow* or *Kolee*.—Another disease of the country is the "Mukkow or Kolee," a species of leprosy. Those afflicted with it are considered as unclean, and driven from society. It does not cover the body with spots, but the whole skin appears dry and shrivelled, as in common leprosy, the hair falls off, the nails and teeth tumble out, and the patient assumes a horrible and unseemly appearance. The disease is said to be hereditary, and it is believed to be caused by particular sorts of food.

It is fearfully prevalent in the districts of Samarkund and Meeanhal; also in the neighbouring states of Stuhr Sabz, and Hissar: all of which are new countries. Some say it arises from the use of the intoxicating spirit called Booza, which is distilled from black barley in these countries; but that liquor and mare's milk are not drank in Bokhara.

The disease affects the general health, and is incurable. The most humane people will tell you, that it is a curse from God, and drive the unfortunate sufferer from them. A separate portion of the city is assigned for the residence of those affected, as with the Jews.

3. *Cholera*.—The cholera has been felt in all these countries. It appears to have taken the route of the caravans, and advanced from India, step by step, into eastern Europe. It raged for a year in Cabul; it then crossed the Hindoo Koosh, in the following season, and desolated Balkh and Koondooz.

For a year, it fluctuated between the valley of the Oxus and Herat. It then attacked Bokhara, Kokun, and the other Uzbeck states, and after devastating the country, passed on to Khiva, Orenburg, and Astracan.

The faculty have discovered no remedy for the disease.

4. The inhabitants of Toorkistan are subject to a constant dryness of the skin: many of them lose their eye-lashes and eye brows, and their skin becomes wrinkled and tawny. They are very fond of oil, sour milk, and cheese; but whether the diet or dryness of the climate causes these appearances, I know not. Opthalmia is a very common complaint. Fevers are rare, but in Balkh, Rheumatism is prevalent. In the city of Bokhara, the disease termed Rickets is common, and the children have generally a puny and unhealthy appearance, which is not observable in the grown-up people of the country. Goitre is unknown in these regions.

Among the medicines, I heard of an oil extracted from the dung of sheep, which is considered a specific for sprains, bruises, and hurts of cattle. It is very pungent, and the flies shun the parts rubbed with it. I have been assured of the Bone Spavin in the horse being relieved by an application of this oil. They procure it by a distilling process.

No. 5.

Notice of two cases of Hydrophobia.

Dr. Dunbar's case of Hydrophobia occurred in a native, and is chiefly remarkable from having followed the bite of a mountain squirrel, which was destroyed shortly after inflicting the wound, in consequence of being supposed to be in a rabid state. The poor man was bitten on the right fore-arm, and the disease did not supervene for three or four months afterwards; at which time, no trace of irritation around the wound could be observed. The first symptoms were restlessness to such an extent, that the patient could not remain in one place or posture, sleeplessness, loss of appetite, and wish to shun society. This continued for a few days till it was found he could not swallow. In this state, Dr. Dunbar was requested to see him. An attempt to swallow any liquid, or the agitation of the air by means of a punkah, produced instant convulsions. The man was bled, and an attempt made to bring

the system under the full influence of mercury, which Dr. Dunbar seems to think was accomplished; a temporary mitigation of the disease, which was probably the result of great weakness, or the approach of dissolution, took place. The patient ate some native sweetmeat, and even washed his own feet by dashing water on them from his lotah, without much inconvenience; any attempt however to appease his thirst was immediately followed by convulsions. He died exhausted with the struggle, between two or three days after Dr. Dunbar first saw him.

Dr. Twining's case of the same disease occurred in a fine European child of eight years of age. He had not spoken for 24 hours when brought to the Hospital. The countenance was expressive of anxiety and terror; the pupils were dilated; pulse 98 and soft; the belly compressible, and the skin cool and moist. The child seemed to be quite sensible, and did as desired; but could not speak. He moaned occasionally, and turned from side to side, as if in pain. The case at this time was considered to be one of intestinal irritation, and a full dose of calomel was exhibited. At noon he shuddered, when raised that he might take some castor oil, the whole of which he swallowed with eagerness and considerable exertion. One of the servents was ordered to punkah him, and then he struggled so violently, that Hydrophobia was suspected. At 3 o'clock, his mother arrived, and said that the child had been bitten about two months before, by a mad dog, and that he had been taken to a surgeon at the time, and the wound excised. On examination an oblong gray scab was found on the top of the right foot, with a lurid redness round it; there was scarcely any swelling or hardness, and no line of inflamed absorbents towards the groin. Some time before however, when asked where he suffered pain, he had pointed to the thigh of that side. The child lay with his face to the pillow, moaned occasionally, and if taken hold of to be moved, or if the air of a punkah reached him, the body and upper extremities were convulsed; the lower throughout remained unaffected. The Liquor Plumbi Acetatis was twice exhibited, but the disease proceeded rapidly to a fatal termination, and at 5 o'clock P. M. the child expired.

No. 6.

Notice of five cases of Blindness, one Congenital and four from early infancy, successfully treated by operation, by F. H. Brett, Esq.

Mr. Brett's first case occurred in a native lad, 16 years of age, who had no recollection of ever having seen; although his relations would not appear to have become aware of his blindness till he was six months of age. The eye-balls rolled excessively, as is usual, in similar cases. On the 27th of November, the right eye was operated on, in the usual manner, and the cataract depressed to the bottom of the vitreous humour. On the 29th, not the slightest inflammation had occurred. The cataract had risen, so as to appear behind the inferior half of the pupil, dancing behind it, whenever he moved his eye, but without injuring the iris. Nothing further was done till the 3rd of December, when on examination, the eye was found in the same state, the cataract remaining unaltered. Mr. Brett then adopted the following expedient, which he hopes will be attended with great success in all cases of old congenital cataract. He seated the patient before him, as in the operation for extraction of the cataract. The pupil having been previously dilated by Belladonna, an incision was made with a sharp-pointed lancet through the sclerotica, about a line from the union of it with the cornea, to the extent of full one line and a half, midway between the external canthus and the lower part of the eye, and a delicate sharp-pointed hook introduced. The cataract was seized and withdrawn, and only a slight degree of vascularity near the wound was the consequence. The same independence of each other, or want of concord between the senses of sight and touch was remarked in this case, as in Mr. Young's, recorded in the proceedings of the last meeting.—The second case occurred in a native, aged 25, who had been blind from the age of five years. The cataracts were operated on, in the usual manner for procuring absorption. The operation was successful on the left, but the right eye became amaurotic, after rather a smart attack of inflammation. The case is considered principally remarkable as showing the aptitude of the optic nerve to resume its functions, after having remained for so long a period as twenty years in a dormant state.

—In the third case, Mr. Brett performed the operation for artificial pupil. The boy was 12 years old, and had been blind from the age of three weeks. He had lost his sight from neglected inflammation and ulceration of the cornea of both eyes, leaving two dense opacities. There was a small transparent semi-lunar portion of the cornea opposite the external canthus of the left eye, behind which the iris was observed in a healthy state. A small sharp knife was introduced about a line from the cornea, and an opening made in the iris; after which he saw immediately. The discrepancy, before noticed, between the impressions of the senses of sight and touch was likewise observed in this case.—The subject of the fourth case was a boy, who had lost his sight from opacity of the cornea from small-pox, at the age of five years. The circumference of the cornea was clear to the breadth of half a line all round, and to the extent of two lines at the external inferior portion. An incision was made in the cornea close to its junction with the sclerotica; the iris protruded; it was seized, and a small portion cut off by means of the curved scissors, and the boy saw immediately.—In the 5th case, there is nothing particularly calling for remark. The operation for the extraction of the congenital cataract through the sclerotica appears to Mr. Brett very practicable and worthy of attention. Of course it is only applicable, where the capsule is thickened and unyielding, as in all advanced cases of the disease.

No. 7.

Reports on the Medicinal Qualities of the Extract of Cherayta, addressed to James Hutchinson, *Esq. Secretary to the Medical Board.*

From A. Wood, Esq. Surgeon 4th Bengal Artillery, Dum-Dum.

I have the honor to acknowledge the receipt of your letter, dated 20th ultimo, intimating that the Apothecary to the Honorable Company has been instructed to forward to me for trial some Extract of the Gentiana Cherayta.

In reply I have to intimate, that for twelve months past, I have constantly been in the habit of using extract of Cherayta among

European and Native patients, in Dysentery, combined with Ipecacuanha, after inflammatory symptoms have been actively combated and overcome, in Diarrhœa, general debility, and debility of the digestive organs: and among native patients as a febrifuge. Having used this preparation and extract of Gentian simultaneously, I have been led to the conclusion, that the former is more certain and powerful in its effects generally, and particularly as a febrifuge. This may very probably depend upon the greater freshness of the herb, and more recent preparation of the extract.

The following circumstance led me to the continued use of Cherayta as a febrifuge. Some years ago, previous to the general introduction of Quinine into this country, when in charge of the Governor General's Body Guard, a very large proportion of the corps was in hospital affected with Intermittent Fever, of Quotidian and Tertian Type. After clearing the primæ viæ, and on improvement of the state of the tongue, I endeavoured to remove the disease by liberal use of Cinchona; but finding no benefit whatever from the free and continued use of this remedy, and conceiving that it might have become deteriorated, since the probably remote period of its despatch from England, and by exposure to sea air, I was induced to give up its use, and to administer instead Cherayta in powder, under which the disease readily yielded. This experiment induced me to continue to use this remedy as febrifuge among natives, and to prepare an extract, which I have proved to be an excellent febrifuge and have used for above twelve-months in the Native Hospital here as such, almost to the entire exclusion of that valuable and expensive medicine Quinine; by which means I have been enabled to retain a larger proportion of the latter for use among the Europeans under my charge at this station, where they are so liable to intermittent fevers, and general debility, caused by climate, disease, and imprudent manner of living.

From W. Twining, Esq. 1st Assistant Surgeon, General Hospital.

The Extract of Cherayta sent to the General Hospital by the Medical Board, for trial, has been used in a variety of cases. It appears to possess the properties of a vegetable bitter in an intense degree; the exhibition of the extract in various doses, from five grains to a half

drachm has not been followed by any effects, which could be ascribed to the existence of other qualities, than those of a simple bitter.

There is a want of aroma in the Extract of Cherayta, which renders it more disagreeable than Gentian, and it has not the same effects as the last-named medicine, in restraining the emetic properties of Ipecacuanha, when administered in combination with that remedy, to Dysenteric patients. For these reasons, I consider the Extract of the Cherayta an indifferent substitute for the extract of Gentian.

In the sample of medicine sent here for trial, the modification of the bitter-principle, appears to be uncombined with Tannin, as it affords no precipitate when heated with Gluten, but there is a very slight trace of Gallic Acid manifest, when tested with the Salts of Iron.

P. S. The Extract of Cherayta sent to the General Hospital became soon mouldy*, and does not appear to keep so well as the Extract of Gentian.

From J. French, Esq. H. M.'s 49th Regiment.

In reply to your Letter of the 20th instant, I beg to acquaint you for the information of the Medical Board, that since the receipt of your letter of the 29th February last, I have made repeated trials of the Extract of Cherayta in the Hospital of the 49th Regiment, and found its virtues equal to those of Extract of Gentian. I may here state, that its use has been entirely confined to a combination with Ipecacuanha and Blue Pill in cases of Dysentery, and from attentive observation, I feel confident, that its efficacy in restraining the emetic qualities of Ipecacuanha is not inferior to that of Gentian.

From R. Shean, Esq. Surgeon H. M.'s 16th Regiment.

In reply to your letter of the 20th instant, I beg to state for the information of the Medical Board, that the Extract of Cherayta has been employed in the Hospital of His Majesty's 16th Regiment of Foot, in combination with Ipecacuanha, and that it appears to have the same effect as the Extract of Gentian in preventing nausea from large doses of Ipecacuanha.

* It is believed that this defect may be obviated by drying the extract, and reducing it to a coarse powder.—J. H.

No. 8.

A letter from Dr. SPILSBURY, *describing two cases of Severe Wounds penetrating the Abdominal Cavity, occurring in Natives.—Addressed to* W. TWINING, *Esq.*

The extreme facility, with which Natives of this country recover from wounds of all kinds, cannot have escaped the notice of the profession. Two severe ones both penetrating the cavity of the Abdomen, have occurred to me within a few days of each other; a slight account of which you may perhaps deem worthy of laying before the Society.

The first was that of a grasscutter, a stout healthy young man about 25, whom I was called to, on the evening of the 5th of June last, having just then been gored by a spotted deer. The horn appeared to have passed just over the spermatic cord of the left side, entering the inguinal canal and penetrating into the cavity of the abdomen upwards and inwards (dorsad), nearly in the direction of the canal.

I found him lying on the ground, with a portion of the small intestines (some 10 or 12 inches) protruding from a small wound on the left side close to the inguinal canal. On having brought him to the house, I found the wound to be so excessively small (scarcely admitting the point of my little finger) as to render reduction of the intestine quite hopeless in that state; with my finger as a director, I enlarged the orifice about one inch, and then with tolerable facility reduced the intestine already considerably heightened in color. Scarcely any blood was lost, and a few stitches brought the lips of the wound together, which was dressed in the usual manner. The intestine was not exposed above half an hour.

10 P. M.—Complains he cannot pass his urine, some tenderness of the abdomen; pulse rising, skin rather warm and dry; some thirst; V. S. to 20 ounces, castor-oil; fomentations.

7th June, 5. A. M.—Had some sleep; pulse nearly natural; two or three stools, urine passed. This was all the treatment he required; on opening the dressing on the third day I found all united, except at the stitches.

The second case occurred on the 12th of the same month. The wife of a Madras seapoy, far advanced in pregnancy, was riding on a bullock, when the animal stumbled and fell, by which she was thrown forward and pitched on one of the horns of the bullock, which entered about an inch above the os-pubis, penetrating into the cavity of the womb. The accident occurred at a village about three miles off at sun-set, but it was 11 P. M. before the woman was brought to me on a charpoy.

On examining the wound, which was about two inches long, in a horizontal direction, I found the hand of a child protruding; with slight hæmorrhage and discharge of liquor amnii. The woman by her own account and by the size of the abdomen, being near her full time, labor soon commenced on irritation of the os tincæ: the child scarcely breathed on being born, and had been injured by the horn on its neck and shoulder; it was apparently at its full time. On expulsion of the child, considerable protrusion of the intestines took place, but was easily and speedily reduced, and the wound brought together by stitches; sticking-plaster, a compress and bandage were applied. 12 hours after, there were considerable pain and tenderness above the navel. The uterus was contracted to the usual size, and not particularly painful. Skin rather hot and dry, thirst urgent, pulse quick; but of good strength. 20 leeches were applied above the navel. Castor oil, fomentations six hours after. Pain much abated, skin moist and natural heat, thirst much abated, pulse nearly natural, oil operated. Next day not a bad symptom. No pain, wound nearly united, and she had merely the usual feelings of a woman after delivery. For some days after pus was discharged per vaginam.

No. 9.

Outline of a case of Laryngeal Phthisis terminating fatally.

By Archibald Campbell, *Esq. Assistant Surgeon.*

In the London Medical Gazette for March, 1833, there is a curious case related by a Mr. Day, of Isleworth. A lady had been very ill for four years, with a Bronchial affection, which she attributed to the presence of a fish bone in these parts; this bone had

stuck in her throat on a particular day, which she well remembered, and although she mentioned the circumstance to all her medical advisers for four years, none would believe her.

In Mr. Day's hands she was relieved. I once had charge of a case somewhat similar to this, where the result was death, and I have little doubt, that had the numerous Surgeons, who attended the patient for years previous to the time I saw him, paid more attention to his own history of the case, and relied less on their own ideas of the matter, the patient would have been rapidly and easily cured. When the case came under my notice the individual was fast going to another world; but even then, had we understood the case, a life might have been saved.

The following is an outline of it taken from memory. In the hot season of 1830, Captain —— of His Majesty's —— regiment of Foot, visited Landour in search of health. On his arrival there in April, he was weak and emaciated, as pale as death; his lips edematous, his breathing laborious, and inspiration accompanied by a strong wheezing sound; his voice weak and hoarse. No appetite, frequent returns of slight fever, and an inability to walk any distance on uneven ground; almost constant cough; with expectoration of thick and tenacious muco-purulent matter. His medical attendants and the world said, he was dying of consumption. I lived within a few yards of his quarters, and he consulted me professionally along with two or more Surgeons of the place. We were unanimous in laying the burden of the disease on the lungs, and he was treated accordingly. One symptom we could not easily account for, the wheezing noise on inspiration. The account, he invariably gave, was that when serving in the last Peninsular war he was Adjutant of his regiment, and fond of entering into all the varied labours of the duties of his office: that there was a constant succession of recruits joining the corps, and that he used to drill and fit them for the ranks himself: that very often he felt hoarse and sometimes had pain in the larynx, but being unable to attend to it (the hoarseness) each return became more annoying and protracted: that for many years after the peace of Waterloo, he was in the habit of reading aloud to an old relation of his, for several hours daily, when

he was often obliged to desist in consequence of hoarseness, and sore throat, which symptoms he said were frequently brought on by any great or unusual vocal exertion, and this alone was the origin of his present illness. He ever said, he was convinced of the correctness of the cause above assigned. He had no pain in the larynx, and the copious and purulent expectoration, with all the other symptoms, were ascribed by us to tubercular phthisis.

The symptoms increased, and his strength diminished rapidly, until July, (I think) when he died. I opened the body and examined it along with Drs. Cathcart and Harcourt: the lungs were sound in structure, and simply gorged with black blood, except a small portion of one of them, which was emphysematous. The lining membrane of the larynx exhibited throughout an ulcerated and purulent surface. The rima glottidis was thickened, and the opening of the glottis so small, that it was scarcely discernible. There can be as little doubt that had he been treated for his disease instead of for an imaginary one, his life might have been saved. The constant and severe irritation in the larynx had gradually thickened the lining membrane of the glottis to such an extent, as nearly to close the passage.

Besides this, spasmodic action was frequently excited in the muscles of the glottis, often threatening immediate suffocation, and probably this spasmodic action alone caused death. The returns of spasmodic constriction of the glottis were attributed to asthma, and were generally relieved by inhaling the steam of hot water. The above may be an useful hint for other people. On me it has made a serious and lasting impression.

No. 10.

Account of a man, in whose stomach a number of Rupees were found on post-mortem examination. Drawn up by A. Gilmore, *Esq. Assistant Surgeon.*

Want of leisure has prevented my writing to you sooner, respecting the case of the man, in whose stomach after death I found some

rupees. It is however more curious than instructive, and would scarcely deserve mention, had not an incorrect statement regarding it gone abroad.

The deceased was, if I am not mistaken, an inmate of the hospital, when I joined the station in 1828. I was informed that he laboured under the anomalous affection vernacularly called Durd-i-sool, which is characterised by agonizing pain at the pit of the stomach, recurring in paroxysms, only to be alleviated by strong external pressure.

This particular individual used always to have beside him a pointed stick, on which he leant or pretended to lean very forcibly, during each attack; but as I could not discover any unequivocal signs of concomitant constitutional disturbance, I set him down as an impostor. At different times however, I prescribed for him, when obviously labouring under fever or Diarrhœa, at which periods it is singular enough he never complained of the pain at his stomach. As the appearance of the man at length denoted there was something wrong about him, though I could not ascertain the cause, permission was given him to remain altogether in hospital; after getting which, he seldom complained of the spasmodic affection.

A week or two before his death, I perceived a great personal change in the man; and on inquiry found he had Diarrhœa, and felt great debility. Tonics and opiates were accordingly administered, but he gradually sank, without alluding to his former uneasiness or seeming to endure much suffering.

On opening the abdomen I was struck with the general unhealthy aspect of the viscera, particularly of the stomach, which was greatly elongated, contracted in its calibre, thickened in its coats and altered in its colour. While searching for the pyloric extremity, the serous tunic gave way, and through the small circular perforation thus formed, the semi-liquid contents of the stomach escaped.

I now discovered a large indurated moveable mass within the viscus, which I was conjecturing might be a scirrhous tumor, or a

bone, when the native doctor exclaimed he had once heard, that the deceased many years before, had swallowed (15) fifteen rupees, and that the tumor, I now felt was probably formed by the money. This story I was inclined to discredit, as not a whisper of the man's ailments having depended on such a cause had ever been made to me. But on laying the stomach open, I actually found (9) nine pieces of silver, placed *en rouleau* at the pylorus; close to which portal a circular ulceration, with dense indurated edges, had been excavated, the lesion of the base of which had allowed the aliment as before stated to escape.

It was fortunate for the poor wretch, that this perforation had not been completed before death, as his dissolution would otherwise have been preceded by severe inflammation and agony.

The stomach, besides being thickened, was lined internally with a tenacious gray varnish, and embossed as it were, with large prominent veins. These were the only appearances noticed, the examination being superficial.

When giving orders, that the intestines should be ripped up in search of the other six rupees; a convict informed me, that the deceased had at successive times passed that number by stool, but how long ago the man had swallowed the fifteen pieces, he could not tell. From the data, however obtained, it is probable, they were taken into his stomach, at least six years previous to his death.

I sent the two rupees, of which receipt is acknowledged, that the Society might observe what little impression had been made on the coin by the gastric juices. The others still in my possession are equally entire, but if the Society wish to judge themselves of the fact, and desire very much to place the additional seven takas in their Museum, I shall forward the treasure to you.

No. 11.

Case of Abscess of the Kidney. Drawn up by J. Lawder, *Esq. Assistant Surgeon, Madras.*

Madara, aged about 30 years—Pariah.

9th June, 1832.—Admitted into the Madras Native Infirmary, with general enlargement of the abdomen, and a hard circumscribed tumour occupying the epigastric and right hypochondriac regions, with a prominent point mid-way between the ribs and umbilicus; on pressure, it gives the sensation of deep-seated matter. He does not appear to suffer much pain, but has a constant short teazing cough, and when in a recumbent position finds great difficulty in breathing.

He states, he has been for a long time subject to intermittent fever, while living in Mysore, and that three months ago, he was suddenly seized with acute pain in the right side, from which period the part continued to enlarge: he cannot give a particular description of his symptoms, he is very much reduced in strength, and emaciated: pulse 120, small and weak; tongue furred; bowels generally costive; urine scanty, high-coloured and depositing a copious mucous sediment; eyes deep yellow; appetite bad, has used many native remedies, and was once severely salivated without benefit.

He was very anxious to have the tumour opened, and as I believed it to be abscess of the liver, and that giving exit to the matter, afforded the only chance of saving his life, I made an incision of two inches in length, over its most prominent part, through the abdominal muscles. I found that no adhesion had formed between its sac and the walls of the abdomen, and that I could pass my finger to a considerable distance round the opening. Under those circumstances, I thought it advisable not to puncture the sac (which was now exposed fully to view) as its contents must have escaped among the viscera; I therefore brought the lips of the wound together, and supported them by means of the interrupted suture and sticking-plaster, applied a large poultice over the part, with direc-

tions to have it renewed every third hour, and waited in the hope that adhesions would soon form, to enable me to proceed with the operation. He was ordered a small dose of castor oil, and to be supported with light nourishing diet, and cordials when necessary.

10*th*.—At my request, J. M. Lane, Esq. Assistant Surgeon, visited him this morning, and after a careful examination, agreed with me, ttha for the reasons before stated, and the surface not presenting the usual appearance of the liver, it would be improper to open the sac. The same plan of treatment was directed to be continued. In the course of the day, he was also seen by the Superintending Surgeon, S. M. Stephenson, Esq. who was of the same opinion.

11*th*.—Slept badly, and continued as yesterday.

R. Pil. Hydrarg. gr. v. St. H. S.—R. Tinct. Hyosciami, ℈ ij.
Mist. Camphor. ℥ i—℔. H. S. S.

13*th*.—Slept badly, and is losing strength ; bowels open.

14*th*.—Was seized with a sudden and acute pain in the abdomen last evening, accompanied with sinking ; the pulse fell, and he became covered with a cold clammy perspiration. On taking cordial draughts (camphor mixture and ammonia) he rallied, and had some sleep, he is now very low : pulse quick and weak ; skin cooler than natural ; abdomen tense ; bowels opened six times ; stools unhealthy ; wound healed. From this date, his strength gradually declined until the 25th, when he expired. For several days before his death, he shewed the greatest aversion to food or medicine, and with difficulty could be prevailed upon to take either.

Dissection. Three hours after death, assisted by Mr. Lane, I examined the body, which was much emaciated.

On opening the abdomen, its contents presented a very unusual appearance. A large membranous bag, containing fluid, and projecting forward, with a part of the colon passing anterior to it, in

an oblique direction, from the false ribs of the left side, to the anterior spinous process of the Ilium on the right, was the only part to be seen. The surface of this bag was studded over with small flakes of coagulable lymph, and it adhered strongly to the peritoneum on the right side, where the incision was made, with the intention of opening the sac.

Finding it difficult to ascertain what the presenting part was, a small opening was made into it, and twenty-three pints by *measure* of healthy pus were drawn off with some difficulty, and after careful examination and separation of parts, we found this immense sac to be the external coat of the left kidney thickened, and except a small portion, the whole parenchymatous structure completely destroyed, and the ureter obliterated.

The stomach, by the pressure of the sac, was pushed into the right hypochondriac region, and the small intestines into the right iliac. The descending portion and sigmoid flexure of the colon were thrown forward (as described); until it reached the spine of the ilium, where it disappeared, and dipped into the pelvis.

All the other abdominal viscera were perfectly healthy. The bladder contained a pint of high-coloured urine. Head and thorax not examined.

No. 12.

Case of Cholera, treated by copious beverages of Cold Water. By A. Ross, *Esq. Surgeon, 4th Light Cavalry.*

The patient, a very strong active *Bheestie*, was seized with vomiting and purging about 10 A. M., and when brought to the Hospital, about 1 P. M., was in a complete state of collapse. No pulse at the wrist, voice nearly gone, and the peculiar rice-water-like dejections flowing from him involuntarily, with violent retching, and spasms of abdominal muscles; had passed no urine since the commencement of attack. Before my arrival, the Native Doctor had given him a large dose of Calomel and Laudanum, which

was immediately rejected by the stomach, and having previously determined to give the *cold-water* system a fair trial, should an opportunity occur, I immediately directed him to be supplied with cold-water *ad libitum*. His thirst was excessive, and calls for water incessant, and in alternately drinking and vomiting, did he continue throughout the night, shewing symptoms of gradual improvement, till 6 o'clock A. M., when secretion was completely established, stools no longer passed involuntarily, and a short time after, the urine commenced flowing. The secondary fever was smart, but manageable, and the man returned to his duty 5 or 6 days afterwards.

I ought to mention, that about 3 P. M. of the first day, a second dose of Calomel and Laudanum was by mistake administered, but as those medicines were immediately rejected, I do not think the successful result can in any measure be attributed to them.

No. 13.

Cases of Dracunculus occurring in Calcutta. By W. TWINING, *Esq.*

Dracunculus is a rare disease in Calcutta, and as that affection has been supposed to be somehow connected with locality, and dependent on the quality of the water or on the nature of the soil, the following cases may be deserving of consideration.

On the 8th August, 1832, I was requested to prescribe for a respectable Arab merchant, and on my visit found, that he was suffering from Dracunculus, or *Nahroo*. The disease was situated at the inside of the right foot, between the inner ancle and base of the metatarsal bone of the great toe, in which situation the dracunculus could be distinctly felt, coiled beneath the skin. There was a blister at the inside of the heel, rather larger than the size of a shilling, much elevated, and very tense from the quantity of fluid it contained. If the Arab had worn a shoe instead of a sandal or slipper, the blister might at first sight have been supposed the effect of chafing of the shoe, in a long walk. The patient was, about 36 years of age, and

was otherwise in good health; he had resided 15 months in Calcutta, and came to this place direct from Bombay. He stated that about two years before, leaving Bombay, he had suffered an extensive suppuration of the leg from a dracunculus, which was broken in an attempt to extract it; several cicatrices on the leg afforded evidence of the severity of former disease. This patient felt some pain and much itching at the part where the dracunculus could be felt coiled at the inside of the foot, as well as at the blister. At the end of 11 days, the blister was opened, and a turbid whey-like fluid evacuated; and the cuticle cut off, leaving a red surface resembling that of a very effectual recent cantharides-blister, from which the cuticle had been removed. In the centre of this red surface was a white depressed spot, the size of a split pea, from which several drops of a turbid fluid issued, when pressure was made over the situation of the dracunculus. Some mild ointment spread on a rag was applied to the ulcerated surface; and the Arab attended as usual to his mercantile business, walking out occasionally in the city, and driving in his buggy every afternoon. After some days, a small deep round depression was evident at the most depressed part of the ulcer, and a serous fluid always issued from this, when pressure was made inside the foot. The disease underwent no evident change for 19 days after the blister was opened; at that time, another vesication had formed over the middle of that part where the dracunculus was coiled up, and much inflammation attended with pain and swelling took place there. When this second vesication was opened with a scissors, there was a considerable puriform thin discharge, and fragments of the dracunculus came out with the discharge; after which, the sores healed. The vesication at the heel was preceded by itching for several days, with a peculiar uneasy sensation resembling what the patient felt formerly when the similar disease commenced in the leg. The whole duration of the disease was five weeks; the man remains well.

This merchant brought with him from Bombay five servants and attendants, one of whom aged 27 years was, at the same time, affected with a similar disease in two places. The first sensation of the disease was felt, at the inside of the internal condyle of the right knee, and a vesication about half the size of the nail of the little finger formed near the same place; the dracunculus could be distinctly felt

beneath the skin. This vesicle broke in a few days, and a white round chord, about half an inch in length, was found protruding from a small orifice.

This man's disease at the knee had been preceded by considerable fever, for which reason he remained quietly in the house, and took little or no food. The fever remained after the blister burst, and some of the dracunculus was extracted daily, the inside of the knee was much swollen and inflamed, and much pulling at the dracunculus caused pain; after two inches were pulled out at any time, about half an inch was quickly retracted, and still the chord, that was visible did not appear elastic. On the sixth day after the vesicle had burst, a man offered to extract the whole worm at once, and in making the attempt it broke, and in a few hours much pain was experienced, with an increase of fever, and swelling at the part; suppuration took place, and many portions of the white chord came out, in an attenuated state, with the matter; the suppuration was not very extensive. On the 16th day, after the vesicle at the knee was observed, a hardness was felt above and to the right of the navel, as if a piece of small chord were coiled under the skin. A very small vesicle formed, about an inch from the right side of the navel, on the fourth day after the hardness was first felt, and it broke the next day, discovering a small portion of white opaque chord protruding at a minute orifice. The end of this was wound round a bit of rag, and a portion pulled out daily, until some pain was caused; a portion of what was pulled out, always retracted. This worm was extracted slowly for five days; on the sixth day, nearly ten inches were extracted at once, and its end was slightly tapering, and ended in a small hook. On disengaging the portion that was wound round the rag, the whole worm measured 17 inches. The orifice from which it was extracted closed the next day, but a convoluted hardness was distinctly to be felt, for three or four days afterwards. The fever, which took place, when the disease near the knee commenced, had subsided before this last worm was extracted. The preparation is brought for the inspection of the Society. After many inquiries I could not ascertain, that any of the neighbours had suffered in the same way.

If we suppose the disease to be excited by ova taken in at Bombay, they must have been at least 15 months in the system, and the

disease is so rare in Calcutta, that we must hesitate to ascribe it to any particular endemic cause. With respect to the vitality of the worm, and the disputed question, whether it be a diseased lymphatic or a worm, I will not venture positively to decide; with the exception of a slight retraction when the worm was much pulled, I saw nothing like motion in it; but there appear strong reasons for not acknowledging the disease to be the morbid condition of a lymphatic. The best works on morbid anatomy contain no examples of diseased lymphatics resembling the dracunculus. The lymphatics of the parts, where these worms were seated, are not coiled up in the manner, that these chords were. Dracunculi have been extracted from the penis, at least twice the length of that part. Besides which considerations, the evidence we have on record, that dracunculi have moved for a long time after extraction, is so ample, that it commands our belief of its authenticity.

The following memorandum of a case of Dracunculus, or Guinea worm, may be worthy of the notice of the Society; as that disease occurs seldom in the Lower Provinces of Bengal.

John McEvoy, rather a delicate boy, aged 8 years, was brought to me for advice on the 12th of November, 1834, on account of a Dracunculus, about four inches of which was protruding at an orifice on the instep of the foot. The remainder of the worm could be distinctly felt, coiled under the skin, at a short distance from the orifice, and another worm of the same sort could be felt, about five inches distant, and just above the ancle. In four days, the whole of the worm on the instep was protruded, and the other worm was also expelled, at a small orifice, from the 25th to the 29th of November, and on the 2nd of December, the orifices, at which the worms had been expelled, were both healed.

On the 10th of December, two small hard swellings, each nearly the size of half a rupee, were observed on the outside of the leg: they were seated about $2\frac{1}{2}$ inches apart, and on careful examination, a dracunculus could be felt coiled under the skin; it could be distinctly

felt in each of the swellings, and a portion of the worm was felt extending in a waiving direction from one of these to the other. There was very little pain in the part, and the child walked about freely, and ate, drank, and slept as other children do in health.

On the 15th December, a small vesicle formed on one of the tumors, and a sero-purulent matter oozed out; at the same time a portion of the worm was protruded. In the course of two days, the whole of the worm was extracted, and the aperture healed.

No. 14.

Case of Snake-bite, in which bleeding was used as an auxiliary. By Thomas Robson, *Esq. Bombay Establishment.*

In transmitting to the Calcutta Medical and Physical Society the subjoined case, exhibiting the efficacy of bleeding as an auxiliary remedy from the effects of a snake-bite, I beg leave to offer it merely as an isolated fact, which although strongly marked in the case recorded, has never been confirmed by any subsequent occurrence of a similar nature; for although, for the last few years, I have resided in a part of the country considered to abound with an unusual number of snakes, I have never met with a case, which has afforded an opportunity of resorting to the same means of relief. Nevertheless, solitary as the fact is, I judge, that the Society may deem it worthy of being recorded, as on some future occasion, it may prove an useful suggestion to others, in the anxious moments of attending such precarious cases. The occurrence took place some years ago at Ahmednuggur, in the Deccan, where snakes are comparatively few, and accidents from them proportionally rare.

Case.

Tilluck Sing seapoy, aged about 22 years; I was called to see him one evening about 10 p. m., being told he had just then been bitten by a snake. I ordered him to the Hospital, and

ran there myself. He was brought in a few minutes after my arrival. He was quite insensible—the surface of the body below the natural temperature—countenance natural—pulse slow, regular, and soft,—teeth firmly locked together—eyes closed. Two small wounds by the snake's teeth, on the left foot, near the root of the great toe. Mixed Liq. Ammon. ʒi. Tinct. Opii ʒ iss. Aq. ℥ iss. Forced the mouth open, and got some of the draught down. Opened his eyes, and showed symptoms of returning sensibility for a moment, but fell back into his former state. In about 10 minutes, I gave him a portion of a strong mixture of Liq. Ammoniæ and Tinct. Opii, in water, of which he swallowed so much, as stimulated him violently. He was then enabled to speak—said a snake had bitten him—had pain in the foot—said he had no other pain. Spoke only when STRONGLY urged, and immediately sunk back into a state of apparent stupor—pulse as at first. Repeated Liq. Ammoniæ every ten minutes, in doses of 20 and 25 minims—slight tumefaction of the abdomen coming on—no other alteration. Spoke only when very strongly urged; said, he had a burning pain in the left leg, no other pain. Called for water. Friction applied by hand rubbing to the whole surface. Continued in the same state—pulse unaltered, that is, slow and soft, but with a feeling of oppression. His appearance, that of a man in a deep sleep, breathing soft and regular, no motion of the limbs, nothing perceptible, but the very slightest twitchings of the eye-lids. The medicine not producing any satisfactory effect, at this time (¼ past 11) I opened a vein in the arm. The moment the blood began to flow, he opened his eyes, raised himself up to a sitting posture,and finding himself in a strange place, looked anxiously round to see where he was. Began immediately to speak freely, described his state—said he felt nothing but a burning pain in his leg. Took away about 8 oz. of blood. The pulse was now accelerated, and had lost the oppressed feel, it previously conveyed. Nothing peculiar in the appearance of the blood. The patient now seemed to be well—was quite animated—caught a stick from the hand of a comrade, who stood near him, in order to describe to me the size of the snake. Said he was cleaning his musket for the morning parade outside of his house, and trod upon a snake, which instantly fastened round his foot in such a manner, that not being able to shake it off, he tore it away with his hand.

After this he passed a restless night, the next day he still felt a burning pain in the bitten part, but neither the foot nor the small wounds inflamed to any degree—was well except a general sensation of relaxation. Gave him a dose of Castor-oil, after which he was quite well, and returned to his duty.

The snake escaped, so that its species was not ascertained, but by his description it appears to have been a small one, from about 15 to 18 inches in length.

No. 15.

Account of two Reports on Cholera. By David Woodburn, *Esq. Assistant Surgeon, Sherghottee.*

Dr. Woodburn's remarks on Cholera commence with an account of that disease at Ramghur, and the vicinity, in 1831. Cholera is stated to have appeared for the first time as an epidemic at Sherghotty, in April 1828, and again in 1829;—1830 passed over without a single case, though the district of Palamow, a short distance to the south, was nearly depopulated by the disease. In the hot season of 1831, it returned, appearing first in the districts to the north-east. From the 10th to 14th April, four cases occurred at Sherghotty, and recovered; from 30th April to 15th May, four more of the prisoners in jail were attacked, and two died; from 15th to 31st, 68 were admitted, and 48 died; from 1st to 8th June nine were admitted, and seven died. The disease ran its course with great rapidity: of the 58 deaths in Hospital, only four survived above 24 hours; 44 died on the day of admission. The mortality among the inhabitants is also reported to be greater, than on any former occasion. Most of the prisoners in the Sherghotty jail, are natives of hilly districts; many of those from Chota Nagpore are sent annually to the jail of Chittra, which is a more healthy station, during the hot winds. One hundred of the most infirm prisoners were thus transferred in 1831—18 of whom were attacked with Cholera, and 11 of those died.

Dr. W. observes, that the frequency of intestinal worms among the prisoners, (indicative of weakness of the digestive organs,) would shew, that they were predisposed to diseases of those organs; but it was remarkable, that not one of the prisoners who were in Hospital, at the time, that the epidemic commenced, was affected with Cholera. Men from 20 to 40 years of age appeared more liable to be attacked than those at any other period of life; while people living in comfort were in great measure exempt from the disease. When the Cholera was most prevalent in May, the weather was unusually hot, and storms of hail and rain had occurred more frequently, than for several years. The epidemic is reported to have made its approach directly against the wind, it was progressive along the road, and then divided into two currents, the one passing to the eastward and the other to the westward.

At one village, three of the runners employed in carrying the mail died; and most of the others were attacked by the disease. From the Ghauts to the Soan, every dawk chowkee was visited by Cholera, and lost part of its establishment. A native doctor and a coolie, sent to the aid of the sick of a village two miles from Sherghotty, were both seized with the disease, soon after they reached the village, which might be ascribed to contagion; but the author observes, it may with equal justice be supposed to depend on an atmospheric cause. Every individual of one family having died, the cattle and other effects were sent to a village, in which no case had yet occurred; the inhabitants of the house, where these arrived, were soon after attacked with Cholera, and the disease subsequently prevailed in the village. Dr. Woodburn states, that his experience of Cholera has been limited to the worst form of the disease in the worst of subjects. He states, that whatever may be the exciting cause of the disease, its first and immediate effect is on the nervous system, producing a state of collapse more or less complete, according to the intensity or other modification of the cause, and the peculiarities of the patient's constitution: the heart is rendered unfit to carry on the circulation, hence the secretions are suspended: congestion takes place, and all the symptoms of the disease are referrible to the conditions above described. The relation between

Cholera and congestive fever is then alluded to, and the resemblance of those diseases to each other pointed out.

The first object in the treatment of Cholera is to produce re-action, and to restore the balance of the circulation. Dr. W. thinks, that no medicine appears to possess any marked influence on Cholera, unless it be combined with opium: he prefers the powder, one or two grains of which, with from 8 to 15 grains of Calomel, are given for a dose: which is repeated; or a draught of laudanum, ammonia and spirits is administered according to circumstances. Thirst was much alleviated by magnesia, and the patients were anxious to procure that remedy. Heat and friction appeared serviceable. The propriety of V. S. must depend on the form the epidemic assumes, and the strength of the patient's constitution; but this remedy was not of advantage in the epidemic described by the author. Electricity and the hot-air bath are mentioned, as remedies likely to be beneficial in some cases; the former, for the purpose of powerfully exciting the system, and the latter to determine the blood to the surface. In severe cases, with early collapse, blisters often proved inert.

Dr. Woodburn's second report on Cholera, relates to the disease which occurred at Sherghotty in March and April, 1833, and particularly to the effects of that malady among the prisoners in the jail. Of one party sent down to Hazarebaugh, in number 177, twenty-seven died of the disease in a few days. Altogether 105 cases occurred in the jail at Sherghotty (then containing 600 prisoners), of whom 75 died. During the prevalence of the epidemic, a part of the prisoners were encamped in the day time, and apparently with benefit. Dr. Woodburn does not ascribe the origin of the disease to contagion. The disease was almost exclusively confined to the prisoners from a particular district, viz. the Nagpore purgunnah. The use of tartar emetic was tried without benefit, carbonate of soda appeared to be more efficacious in allaying thirst, than magnesia, or any other remedy; and with respect to other medicines, the author does not offer any opinion different from those contained in his report on the Cholera of 1831.

No. 16.

Description of a Machine for curing contractions of the Knee joint, by Dr. Daunt, Surgeon, H. M. 44th Regiment. Presented by the Medical Board.

The machine consists of a solid plank, 53 inches in length, 14 inches in breadth, and 2 inches thick. On the plank are placed two others, joined endwise by a hinge, they are nearly of the same thickness, but only 8 inches broad, and together 36 inches long. The upper surface of these latter pieces is slightly hollowed, to allow of the contracted limb resting more steadily on them; the shorter of the upper pieces is to correspond with the thigh, its length is 16 inches, and one end of it is fixed by a hinge, at 16 inches from the end of the broader plank; so that when a patient sits with the buttock of the contracted limb on the broad plank, the narrow upper portion of the machine admits of being bent by means of the hinges, so that its hollowed surface is applied to the back part of the thigh, and the joint coming up to the ham, the lower part extends below the heel. The contracted limb being secured by five strong leathern straps and buckles to the hollowed surface of the two short and jointed planks; the weight of the machine acts powerfully to produce extension, and when requisite, additional weights can be attached to hooks, which are placed at the sides of the joint, which applies to the ham of the contracted limb. This machine when used is to be placed on a bench; and Dr. Daunt, as well as Superintending Surgeon Tweedie, speak highly of its efficacy in cases of contracted knee-joint, when all inflammation has subsided.

No. 17.

Account of several cases of Cholera, treated by Tobacco Enema, extracted from the Proceedings of the Society.

Dr. Casanova's report on the effects of the Enema of tobacco-smoke, in the collapsed stage of Cholera, contains three cases of

natives of Bengal, in whom that remedy was employed at a period when the symptoms of collapse had commenced: two of these patients had been bled to eight and nine ounces before the tobacco-smoke had been injected, and they had used some stimulants in such small doses that under ordinary circumstances little benefit would have been expected from those medicines. The symptoms of collapse ceased in a short time after the tobacco-smoke was injected, and the patients quickly recovered, requiring only mild aperients of castor-oil. The quantity of smoke injected, at one time, was from 20 to 40 cubic inches. The author suggests the probability that different preparations of tobacco may produce different effects on the constitution, and future investigation may enable us to prescribe exactly that which is best adapted to the state of the patient. He refers to the statement of Mr. Brodie's experiments, showing that the infusion, when swallowed, acts at once on the heart, while the essential oil introduced into the stomach acts exclusively on the brain, leaving the power of the circulation unimpaired. Hence it is presumed, that the tobacco-smoke may act more satisfactorily in Cholera than the infusion. The author states, that for the purpose of injecting the tobacco smoke, a patent enema syringe, with valves to be moved by a lever, is requisite, and with that instrument the smoke produced by a common chillum, or by a common pipe, adapted to the lower end of the syringe, may be injected. He refers to Mr. Greenhow's work, in which there is an account of 12 cases of Cholera in the stage of collapse, some of them suffering from symptoms which are usually deemed indicative of a hopeless state, and described to have been in the most unfavorable condition; they were treated with the enema of infusion of tobacco, in the proportion of 3 ss. of tobacco-leaf to lb.ss. of water. Of these 12 cases, six were treated by Mr. Baird. These patients were all affected with more or less of spasm, three of them were bled respectively, to four, eight, and nine ounces, before the tobacco enema was administered; in one of the cases a second tobacco enema was given about six hours after the first, on account of a return of unfavorable symptoms. In almost all these cases vomiting occurred soon after the administration of the enema, the respiration became more free, and warmth of surface with increased freedom and volume of the pulse were observed; and in some cases,

in which the pulse at the wrist had ceased, the circulation was restored in 12 or 15 minutes. Some febrile affection occurred in several of these patients, and all of them except one recovered.

Mr. Fyfe treated with tobacco-injections five cases of Cholera, of a very bad description, attended with cramps, and more or less advanced in the stage of collapse. In the whole of these cases the cramps were allayed; in four of them vomiting was very much relieved; and in three of the number purging was lessened quickly after the injections were given. In one of these cases the enema was repeated. The whole of them recovered. The enema was prepared with ʒ ss. of tobacco, in half a pint of water. Mr. Greenhow employed the same mode of treatment in a case of Cholera of 48 hours' duration, attended with spasms, and tending a state of collapse, which had not yielded to other remedies; a good effect was quickly produced, as in the above cases, but after a few hours, a return of unfavorable symptoms required a second enema, after which, the bad symptoms all ceased, and the patient had a tardy recovery.

In one of Mr. Twining's cases, the constitution had sunk into a state of torpor, which was insusceptible of the influence of any remedy, and the enema was of no avail. The other case occurred on the same day; the patient was tending to the same state of general torpor, and suffering from laborious respiration, severe spasms in the left thigh and leg; vomiting and purging had ceased, there was great anxiety, and the tongue was cold. An enema prepared with ʒ ss. of tobacco, in half a pint of water, was administered: in a few minutes after which, the spasms ceased, and did not return afterwards; in eleven minutes, the respiration was more free, the pulse had more strength, and was fuller, and the extremities warmer. In an hour the patient was in many respects worse, he had vomited once, there was great anxiety and lowness, with rapid weak pulse, but no return of spasms, and the warmth had not ceased. An enema of four pints of water, containing in solution ʒ ii. of carbonate of ammonia, (at 100 deg. Fahrenheit,) was administered; after which, he gradually revived, and small quantities of brandy in hot sago were given frequently; a moderate degree of re-action took

place, and this patient's recovery may be expected. From the immediate effects of the remedy on the state of the pulse and respiration in this case, and the reports of the influence of the tobacco enema in Europe, the author is disposed to hope, that benefit may be derived from that remedy in extremely severe cases of Spasmodic Cholera, running into a state of collapse, and where general torpor is evidently approaching in plethoric subjects, more especially in those cases in which profuse evacuations had not taken place. Its beneficial effects on the pulse and respiration in a few minutes were very evident. A return of vomiting soon after the tobacco enema was received appears to have been generally observed in the cases which terminated favorably in Europe. Numerous trials of the remedy are considered necessary to ascertain its precise effects, and most appropriate doses; also to prove the relative merits of the enema of infusion or smoke.

In Mr. Raleigh's case of Cholera, collapse came on early, and the disease was rapid in its progress. When the patient was first seen, he was suffering severely from spasms, with coldness of the extremities, weak voice, rapid pulse, and other symptoms of collapse. The enema of infusion of tobacco was tried; its immediate effects were to render the pulse more distinct and free, and to diminish the spasms, but the dark-red color of the face remained, the eyes were sunk and surrounded by dark areolæ, therefore liquor ammoniæ was repeatedly given, and calomel in dose of ℈ i. The symptoms of collapse increased towards 6 P. M., with feeble pulse and occasional spasms. The tobacco enema was then repeated, and draughts with ammonia were given every hour. The patient gradually sunk, and died eleven hours after admission into Hospital, and less than 20 hours from the invasion of the disease.

No. 18.

Analysis of Dr. Morehead's Account of the Opinions of the Natives on the western side of India regarding the treatment of Tooth-ache.

In Dr. Morehead's account of the opinions of the natives of the western side of India, regarding the treatment of tooth-ache; the

author dwells principally on their mode of employing fumigations with the seeds of the Ringnee, (Bhatkateia, or Rengani, *Hindi*—Kantakari, *Sanscrit*—Dorlè-ka jur, *Dukhanie*.—Solanum Jacquini.) The requisite apparatus for using the remedy consists of a basin of water, over which a common earthen vessel is inverted; this vessel has a hole at the side through which a small heated plate of iron is inserted, and on it the seeds are placed. The smoke, which arises in abundance, is admitted to the mouth and decayed tooth, without inhalation, when the patient applies his mouth over a hole that is cut in the bottom of the inverted vessel. A copious flow of saliva takes place, which is received in the basin of water. This mode of fumigation usully affords relief from tooth-ache, and the natives assert, that a number of small worms are destroyed and expelled from the hollow tooth; in proof of which, they shew many small white but short thread-like substances in the basin of water after the fumigation is finished. Dr. Morehead is of opinion that these are not worms, but a portion of the seeds, some of which, when heated to a certain degree, burst, and a portion of the interior of the seed, expanded and scorched, starts from the heated iron into the water. A similar mode of fumigation for tooth-ache is occasionally practised in England, the seeds of Hyoscyamus being used.

No. 19.

Notice of a Vermifuge Medicine, extracted from the Proceedings of the Society, for the month of February last.

A letter was read from Dr. Wallich, presenting some seeds, sent round from Singapore, by Mr. G. J. Gordon. The seeds are said to be in general repute at that place, for expelling Lumbrici or Ascarides.

The name of the plant, which is said to be a native of Java, is Sunsung Aroos. Mr. Assistant Surgeon Oxley, who would appear to have brought the medicine to the notice of Mr. Gordon, speaks of it in the following terms, "Numbers are bad, but those that have

kernels, I pound and give in a little jam or honey. The dose may be as large as you can get a child to take, but I believe four or five good nuts are sufficient. The natives sometimes eat it by handfuls, so it is perfectly harmless. I have known one dose discharge, without any other medicine given after it, twenty-nine Lumbrici. It is worthy of being brought to the notice of the Profession."

According to Dr. Wallich, the seeds are those of the Quisqualis Indica, described by Rumphius in his Herbarium Amboinense, Vol. V. page 71. The plant is to be found at Penang, Singapore, and in the Burmese country. It is likewise cultivated with success in the Botanical Garden, and Dr. Wallich offered to supply in their proper season, any quantity of the seeds, that might be required for medicinal purposes.

No. 20.

Amputation of the Right Arm for a malignant disease. By W. Bell, *Esq. Asst. Surgeon, Kamaon Local Battalion.*

Junu, a Doom, residing two marches from here, at a village called Dhunie Court, applied to me for the removal of his arm, April 4, 1833, which at the time presented a most disgusting appearance. He was much emaciated; between 40 or 50 years of age, but constitutionally much older from the pain and irritation he had endured the last three years, at which time the disease first commenced in the form of a small pimple on the back of the metacarpal bones, to heal which, many remedies of his own were had recourse to. Among them was the very curious one of boiling a large black snake, and applying a small portion of its oily substance; the hand however swelled considerably, and the sore increased after this application: he attributes the deformity which followed to this remedy. From its general appearance, I was inclined to consider it a case of tubercular elephantiasis, and not in the least connected with any absorption of poisonous matter from the snake remedy. The hand and arm, as far as the insertion of the deltoid muscle, were one encrusted mass,

with several ichorous ulcers here and there. The back of the hand and fingers were enormously enlarged, the smallest measuring seven inches in circumference, and from the tip of the thumb to the little finger, 11 inches in length. The fore-finger had mortified, and sloughed off, leaving an unhealthy surface, covered with maggots. As he was anxious for relief, I removed the arm in the usual manner, the following morning. Being a good deal reduced, I was unwilling to lose a drop more blood than could be avoided, therefore passed a ligature over the humoral vein, as well as the artery; the ligatures came away on the 13th and 14th day after the operation, and the case terminated well. The patient is now in my compound, and in a far different condition to what he was, previous to the operation, having daily improved in strength and plumpness. He appears grateful for the advantage he has derived.

On inspecting the hand afterwards, the disease appeared in the first instance to have commenced in the superficial parts above the wrist. The ulceration did not appear to extend deeper than the skin and cellular membrane; the muscles underneath were quite distinct, only very pale and much shrunk. The hand and fingers were completely disorganized, presenting a firm, white cartilaginous appearance, and leaving no traces of ligaments or tendons.

No. 21.

Donations for the Library.

Vos, J. G., M. D.....	Vos on Vaccination.
Waddell, the late G.,M.D.	Glasgow Medical Journal,vol.the 4th.
Twining, W. Esq.	McIntosh's Principles and Practice of Physic, vol. the 1st.
Asiatic Society.	The 18th vol. of the Asc. Researches. The Index to the first 18 vols. of Do. The 2nd and 3rd vols. of the Journal of the Asiatic Society.
Jacob, N. H. Esq.....	From the 7th to the 13th Livraison of his Work on Anatomy.
Huffnagle, Dr.	Jackson's Principles of Medicine, founded on the Structure and Functions of the Animal Organism.
O'Shaughnessy, W. B.,.. M. D....	His Report on the Chemical Pathology of Cholera. His Translation of Lugol on Iodine in Scrofulous Diseases. His Account of the Poisonous Articles used for colouring Confectionary. His Analytical Anatomy of the Circulation of the Blood in the four classes of Vertebral Animals.
McGrigor, Sir James, Kt.	Catalogue of the Library at Fort Pitt, Chatham. Catalogue of the Preparations in the Museum at ditto, ditto.
Grant & Pearson, Messrs.	The 1st and 2nd Numbers of the India Journal of Medical, Science.
Stevenson, W. Esq.....	Works of Hippocrates in 4 vols.
Royal College of Surgeons of London, ...	Parts of the Catalogue of the Museum and Library of the College, and a Memoir on the Nautilus Pompilius.

Kennedy, R. H., M. D...	Dictionnaire de l'Academie Française, Gazophylaceum Lingua Periarum, Torriano's Dictionary, Voyage pour Decouvier un Chemin a la Chine, Bartholini's Centuria, Tulpir's Observationes Medicale, Brown's Pseudo-doxia, Medical Observations, Trotter's Medicina Nautica, Annual Medical Review, Easton on Longevity, Cabrera's Ruins of a City in Spanish America.
Medical Board, Bengal.....	Second fasciculus of Drawings from Anatomical Preparations in the Museum at Chatham. Christie on Cholera.
Richy, L. A., M. D.....	Cheron's Prophylaxie du Cholera Morbus.
Tytler, J. Esq.....	A Series of Letters on Native Education. Three tracts in the Native Languages, being part of the translations of Medical Lectures, recently prepared, for the use of the Native Medical Institution. Auzoux du Cholera Morbus, &c. &c.
Ram Esher Awusthee.....	Translation from the Mukhsun-ool Odeoyeh, on the Properties of the Usp-gool.
Mitchell, J. K., M. D...	Cases and Observations on Rheumatism.
Hutchinson, James, Esq.	Wiseman's Surgery. Newton's Principia Mathematica. Hutchinson on Cholera Asphyxia.
Ludlow, S. Esq.....	150 volumes of Medical and Surgical Works.
Gregory, Geo., M. D...	Report of the Select Committee of the House of Commons on Vaccination.

Hays, Isaac, M. D.....	American Cyclopædia of Practical Medicine and Surgery, Parts 1, 2, 3, 4, 5.
	Description of the Inferior Maxillary Bones of Mastodons, with Remarks on the genus Tetracautodon.
	American Journal of Medical Science, Nos. 20, 22, 23, 24, 26,27, and 28.
	Observations on the Pathology of Cholera.
	Nos. 15 and 16 of Cholera Gazette.
Morton, J. Esq.....	Illustrations of Pulmonary Consumption.
Cantor, Dr.....	Otto's Works on Phrenology.
McGowan, A., M. D.....	Davis's Works on Operative Midwifery.
Lane, Hunter, Dr..... ..	Liverpool Medical Gazette, vol. the 1st.
	Monthly Archives of Medical Science.
	The 7 first Numbers of the Liverpool Medical Gazette.
Roussel de Vauzeme, M. D.	Memoire sur le Cyamus Ceti.
Boott, F., M. D.	Memoir of the Life and Medical Opinions of Armstrong, with an Inquiry into Malaria.
Casanova, J. N., M. D...	The Works of Segalas on Lithontrity, and on Retention of Urine.

No. 22.

Donations for the Museum.

BURNARD, R. N. Esq.	15 Specimens of Urinary Calculi, extracted from Natives by the operation of Lithotomy.
CAMPBELL, A., M. D.	A preparation of 2 Sections of the Proboscis of the Elephant, from Nepaul.
	Specimens of the Congenital Goitre in Domestic Animals.
LATOUR, Mons. M.	A Specimen of a Glass Vessel, constructed for the purpose of treating Diseases by Inhalation, with a printed Paper.
GOODEVE, H. H., M. D.	A Model of an Apparatus for the application of Steam locally, invented by Dr. Macartney of Dublin.
CLARKE, J. Esq.	A Preparation of a Fracture of the Femur, at the Trochanter Major.
BELL, W. Esq.	Specimen of Urinary Calculus in fragments, weighing altogether three ounces, removed by the operation of Lithotomy from a Hindoo, aged above 50.
	An Urinary Calculus, extracted by the lateral operation.
WALLICH, N., M. D.	Specimens of the barks of the Melia Azedirachta and Swietenia febrifuga.
	Some dry Leaves of the Cassia lanceolata, from the Hon'ble Company's Botanical Garden.
	Some Seeds of the Sun Sung Aroos, from Singapore—a medicine in repute for expelling Lumbrici and Ascarides.

Gilmore, A., M. D.....	2 Rupees found in the Intestines of a man, who had swallowed them several months previously.
	A Preparation of a small fœtus.
	Ditto of Intestine taken from a Patient who died of Ileus.
Brett, F. H. Esq.....	13 Specimens of Urinary Calculi.
	8 Ditto of ditto ditto.
Bengal Medical Board...	A Machine for curing Contractions of the Knee-joint, invented by Dr. Daunt.
	Liquor Lyttæ, prepared at the Honorable Company's Dispenary.
	Caoutchoucine, a Liquid of inflammable nature, obtained from Caoutchouc or Indian Rubber.
Pereyra, E. L., Dr., of Bordeaux.....	A small box of the plant Mikania guaco, recommended in Cholera.
Wray, O. Esq.....	Preparation of a Lacerated Uterus.
	Ditto of Diseased Arm, Amputated.
	A ditto of a small Spleen incased in a thick layer of Cartilage, taken from an European.
Casanova, J. N., M. D...	Specimen of Detritus of an Urinary Calculus, treated by Civiale's instrument.
Darby, W. Esq.....	An Urinary Calculus, extracted from a Native by the operation of Lithotomy.
Egerton, C. C. Esq.....	A ditto ditto, from an European child, aged 6 years.
	2 Specimens of Urinary Calculi.
	Specimens of the Fungus of the Eyelids, extirpated from a Native.
	An Urinary Calculus extracted from a boy of 9 years of age.
Davies, R. M., M. D.....	A Hemp Seed or Oxalate of Lime Calculus, voided by Urethra, by a child aged one year.

Drummond, A. Esq.....	A Preparation of a portion of the Organ of Hearing in the Whale.
Desnoyer, Mons. L., M. D.	A box of Geological Specimens from the Island of Bourbon.
Twining, W. Esq.....	A turbid dark-brown fluid, discharged from the ear of a patient, long afflicted with head-aches.
	Specimen of Dracunculus, extracted from the Cellular Structure of the right side of the Abdomen of a Native of Ispahan.
	A Biliary Concretion found in the gall-bladder of an aged subject.
	Specimen of Phosphate of Lime, taken from the Mesentery of a subject that died of Chronic Gastro-Enteritis.
	A Preparation of a Diverticulum of Intestine.
College, T. R. Esq.....	The Cranium of a Chinese executed for murder.
Stewart, D. Esq. M. D...	Preparation of an enlarged gall-bladder, with a portion of Liver attached.
	Preparation of an Aneurism of the Aorta, which burst into the Pericardium.
	An Urinary Calculus, extracted by the natural passage.
	A drawing of a Tuberculated Liver.
Young, D. S. Esq.....	Specimens of an Aceto-Spirituous Tincture of Cantharides.
Tzeta, Col. D.	Specimens of the Cherayta from Nepaul.
Piddington, H., Esq.....	A bottle of Powdered Turpethum Root.